City of Corvallis

Off-Street Parking and Access Standards

Last updated: June 1, 2007

The City has incorporated their current off-street parking and access standards in a single text to aid designers of such facilities. These requirements cover the majority of design standards set forth by the city; however, they are in no way meant to limit the City's ability to adopt new standards or to modify the existing ones.

The standards included in this text are meant to be supplemental to any requirements established by the Land Development Code and any other city ordinances and policies concerned with off-street parking, loading, and access. Additionally, any requirements set forth by the City Engineer, the Planning Commission or City Council for a specific project shall be considered as requirements over and beyond those listed in the text.

The standards are broken down into several sections to aid you in locating the City requirements. A table of contents for these sections follow:

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These standards are not intended to be a replacement for innovative design and concepts. If such a circumstance arises and the innovative design is consistent with the objectives of the City, the design may be approved.

If any questions arise in your use of these standards, please contact the Development Services Division at (541) 766-6929 for an explanation of the requirement.

I. General Layout

A. Number of Off-street Parking Spaces - The minimum and maximum number of off-street parking spaces (including bicycle spaces) required for various types of residential, commercial, and industrial developments hereafter built, enlarged, increased in capacity, or changed in use shall be specified by Chapter 4.1 of the Land Development Code, as it presently exists or as amended in the future.

B. Commercial Parking Stall Size and Maneuvering - Maneuvering distances, parking stall size, and travel way size for parking lots shall be as shown in Standard Detail 111. Dead-end drives, greater than 150 feet in length and required for fire apparatus access, shall be provided with turnaround areas in accordance with Standard Detail 112.

1. Compact Car Spaces - Up to 40 percent of the required parking spaces may be reduced in size for the accommodation of compact cars. Compact car spaces should be located near the entrance to any lot or aisle.

C. Tandem Parking - Tandem parking is the parking of two vehicles, one in front of or behind the other, which requires one of the vehicles to be moved in order for the other vehicle to enter or exit. Two cars parked in such an arrangements shall be referred to as a tandem parking stall. Tandem parking is sometimes referred to as stacked parking. Tandem parking is not parallel parking. Tandem Parking is permitted only for the following Residential Building Types, as defined in Chapter 1.6 of the Land Development Code: Single Detached, Single Detached (Zero Lot Line), Duplex, Single Attached (Zero Lot Line), Attached (no more than three dwelling units), and Manufactured Homes. There shall only be two cars parked in tandem per dwelling unit. A tandem parking stall must serve only a single dwelling unit. The minimum size of a tandem parking stall is 9 feet wide by 39 feet deep.

D. Residential Maneuvering - Maneuvering distances for residential parking garages and carports shall be in accordance with Standard Detail 113. Any access drive greater than 50 feet in length shall have a maneuvering space to allow vehicle turnaround room.

E. Standard Bicycle Rack: Bicycle racks shall conform to Standard Detail 503. Bicycle parking and access shall conform to the standards in Chapter 4.1 of the Land Development Code.

F. Backing or Maneuvering of Vehicles - Developments required to provide 4 or more parking spaces shall not have backing or maneuvering movements for any of the parking spaces occurring across public sidewalks or within any public street other than an alley, except as approved by the City Engineer. Evaluations of requests for exceptions shall consider constraints due to lot patterns and impacts to the safety and capacity of the adjacent public street, bicycle and pedestrian facilities.

G. Setbacks - Where there will be backing movements from a driveway to the public right-of-way, all off-street parking shall be provided so that a minimum of 19 ft of length is provided between the sidewalk or future sidewalk to a garage door or

carport entrance. Where no sidewalk location has been established, a 19-ft setback from the right-of-way edge to the parking structure shall be used. Nothing in this section shall imply or permit a lesser setback than that required by the Land Development Code.

H. Screening of Parking and Loading Areas: Screening of all parking areas containing 4 or more spaces and all parking areas in conjunction with an off-street loading facility shall be required in accordance with district requirements and Chapter 4.2 (Landscaping, Buffering and Screening) of the Corvallis Land Development Code. Where not otherwise specified by district requirement, screening along a public right-of-way shall include a minimum 5-ft depth of buffer plantings adjacent to the right-of-way. In addition, the specifications of this section shall apply.

1. Landscaped parking areas can include special design features which effectively screen the parking lot areas from view. These design features may include the use of landscaped berms, decorative walls and raised planters.

2. Landscape planters may be used to define or screen the appearance of off-street parking areas from the public right-of-way.

3. Materials to be installed should achieve a balance between low lying groundcover and shrubs and vertical shrubbery and trees.

4. Trees shall be planted in landscaped islands in all parking areas, and shall be equally distributed throughout the lot per Chapter 4.2 of the Land Development Code in order to provide a canopy effect. The minimum dimension of the landscape islands shall be 5 feet (or 10 feet where the curb edge is used as the vehicle wheel stop) and the landscaping shall be protected from vehicular damage by some form of wheel stop.

I. Lighting: Any lights provided to illuminate a parking facility shall be arranged so as to not direct or reflect light onto adjacent properties. Full cut-off fixtures and house-side shields are encouraged where applicable. Parking garage lighting shall conform with the applicable Institute of Transportation Engineers guidelines.

J. Curbing - All off-street parking lots with an area greater than 3,000 square feet or more than 10 parking stalls, whichever is greater, shall have a standard straight or extruded concrete curb or other approved curb type around the perimeter of the facility. Standard curb details are shown in Standard Detail 103.

K. Wheel stops - Parking spaces along the outer boundaries of a parking area that are not covered by Item J above shall be contained by a curb or wheel stop so placed to prevent parked and maneuvering vehicles from extending over or encroaching on an adjacent property line, street, sidewalk, or landscape area.

L. Paving - All off-street parking, maneuvering, and loading, areas shall be paved with either asphaltic concrete, portland cement concrete, or other approved hard surface in accordance with the City's off-street parking and access paving standards. Gravel is

not an approved surface. Refer to Section IX.

M. Slope Setbacks - All off-street parking, maneuvering, and loading areas shall be setback a minimum of 2 feet from the top of 3:1 (horizontal:vertical) or steeper slopes.

N. Marking - Yellow striping shall be provided to denote separation of two-way drive aisles. White striping shall be provided to denote separation of one-way and same direction drive aisles and extent of parking stalls.

II. Access

A. Driveway Approaches in General - All driveway approaches connecting to City maintained streets shall be constructed in accordance with City standards. Individuals who perform concrete work in the right-of-way are required to provide proof of insurance and qualifications in accordance with Section 2.15.080 of the City Municipal Code.

B. Benton County Driveway Approaches - Driveway approaches connecting to Benton County maintained streets require a separate permit from Benton County. Contact Benton County Public Works Engineering Division at (541) 766-6821.

C. ODOT Driveway Approaches - Driveway approaches connecting to Oregon Department of Transportation (ODOT) right-of way require a separate permit from ODOT. Contact ODOT at (541) 757-4192 for more information. If driveway approach is within 100 feet of a railroad crossing, contact ODOT Rail at (503) 986-4273 to determine whether a permit is required.

D. Commercial and Multi-Family Residential Driveway Approaches - The standard size and configuration for driveway approaches for commercial use is shown in Standard Detail 109. Commercial driveway approaches shall be constructed out of 4,000 PSI concrete (minimum). Commercial driveway approaches may be required on all parking lots with more than 10 spaces or on other approaches from major streets where directed by the City Engineer. The driveway widths in Table 1 shall also be minimum design requirements.

E. Residential Driveway Approaches - The Standard size and configuration for driveway and alley approaches for residential use is shown in Standard Details 108 and 108A. The approach shall be constructed of 3,000 PSI (minimum) concrete. The driveway widths in Table 1 shall also be minimum design requirements.

Table 1
Minimum Driveway Widths

Description	**Two-Way Traffic Minimum Driveway Width**
Commercial access drive	24 feet
Single access drive for one dwelling unit	12 feet
Single access drive for two to three dwelling units	18 feet
Single access drive for four dwelling units to local street	18 feet
Single access drive for four dwelling units to arterial or collector street	20 feet
Any access drive for five or more dwelling units shall be considered a private street and shall be constructed to City standards	20 feet
Any drive required for fire service access	20 feet (unobstructed)
One-way access drives shall be considered by the City on a case-by-case basis	12 to 18 feet wide (case by case)

F. Access to Arterial and Collector Streets:

1. Off-street facilities shall be designed and constructed with turnaround areas to prevent back up movement onto arterial streets.

2. Location and design of all accesses to and/or from arterial and collector streets (as designated in the Corvallis Transportation Plan) are subject to review and approval by the City Engineer. Accesses shall be located a minimum of 150 ft from any other access or street intersection. Exceptions to this may be granted by the City Engineer. Evaluations of exceptions shall consider posted speed of the street on which access is proposed, constraints due to lot patterns, and effects on safety and capacity of the adjacent public street, bicycle and pedestrian facilities.

3. No development site shall be allowed more than 1 access point to any arterial or collector street (as designated in the Corvallis Transportation Plan) except as approved by the City Engineer. Evaluations of exceptions shall consider posted speed of street on which access is proposed, constraints due to lot patterns, and effects on safety and capacity of the adjacent public street, bicycle and pedestrian facilities.

4. When developed property is to be expanded or altered in a manner that significantly affects on-site parking or circulation, both existing and proposed accesses shall be reviewed under the standards in 2 and 3 above. As a part of an expansion or alteration approval, the City may require relocation and/or

reconstruction of existing accesses not meeting those standards.

G.. Access to Alleys

1. Any alley used for ingress/egress to a parking lot shall be improved to City standards. These improvements shall be constructed along the entire length of the alley used for parking lot access and along the property where parking lot improvements are proposed.

H. Access to Unimproved Streets

1. Development may occur without access to a City standard street when that development constitutes infill on an existing substandard public street. A condition of development shall be that the property owner sign an irrevocable petition for public street improvements. The form shall be provided by the City Engineer and recorded with the property through the Benton County Recorder's Office. This shall be required with approval of any of the following applications:

   a. Minor land partitions;
   b. Conditional development;
   c. Building permits for new non-residential construction or structural additions to non-residential structures (except accessory development); or
   d. Building permits for new residential units. All off-street facilities shall be designed and constructed with turnaround areas to prevent back up movement onto arterial streets.

I. General Vision Clearance (Applies in all areas except CBD)

1. All driveways on local streets serving less than 30 parking spaces: A vision clearance triangle shall be maintained between an elevation of 2 feet and 8 feet above driveway height for all driveways on local streets serving less than 30 parking spaces. The legs of the vision clearance triangle shall be 15 feet in length measured from the intersection of the public right-of-way with the edge of driveway. The edge of driveway shall be defined by curbing, edge of pavement, or the end of parking stall striping (see Figure 1).

2. All alleys on local streets, or driveways on local streets serving 30 or more parking spaces, or driveways accessing collector or arterial streets: A vision clearance triangle shall be maintained between and elevation of 2 feet and 8 feet above the driveway height for all alleys on local streets, or driveways on local streets serving 30 or more parking spaces, or driveways accessing collector or arterial streets. The legs of the vision clearance triangle shall be 25 feet in length measured from the intersection of the public rights-of-way in the case of an alley, or from the intersection of the public right-of-way with the edge of driveway. The edge of driveway shall be defined by curbing, edge of pavement, or the end of parking stall striping (see Figure 2).

3. All street intersections, or alley access to collector or arterial streets: An unobstructed sight distance at all street intersections (including private streets) between an elevation of 2 feet and 8 feet above the street height, shall be provided in accordance with the AASHTO-Geometric Design of Highways and Streets, Chapter 9, At-Grade Intersections.

4. Intersections with no control or yield control of the minor approach: Sight distances in Table 2 will apply (see Figure 3). Any sight distance obstruction under this scenario should be referred to engineering's Development Review Supervisor.

Table 2
Sight Distance
No Stop or Yield Control

Speed (MPH)	D[1] (FT)
10	45
15	70
20	90
25	110
30	130
40	155
50	180

Notes: 1. See Figure 3.

5. Intersections with stop control on the minor approach: Intersections with stop control on the minor approach, including the intersection of all private driveways with collector and arterial streets, that provide the sight distances identified in Table 3, shall be considered to have met City sight distance requirements (see Figure 4). These distances are based on the crossing movement sight distance as identified in Chapter 9 of the AASHTO-Geometric Design of Highways and Streets. Stop control shall be interpreted as a stop sign or signal, except in the case of driveways, for which the stopping requirement is established under Oregon law.

Table 3 Sight Distance Stop Control on Minor Approach[1]							
Street Classifications	**Number of lanes**	**Distance[2] (D) (ft)**					
		Speed 25 MPH	**Speed 30 MPH**	**Speed 35 MPH**	**Speed 40 MPH**	**Speed 45 MPH**	**Speed 50 MPH**
Local	2	239	287	334	382	430	478
Neighborhood Collector	2	255	306	358	409	460	511
Collector	2	257	309	360	412	463	515
Collector	3	276	331	386	441	496	551
Collector	4	290	348	406	465	523	581
Collector	5	305	366	427	488	549	610
Arterial	2	261	313	365	417	470	522
Arterial	3	279	335	391	447	503	559
Arterial	4	294	353	412	470	529	588
Arterial	5	309	370	432	494	556	617

Notes: 1. The driver's eye is assumed to be located 20 feet from the edge of pavement or curb line or 10 feet from stop bar or crosswalk (marked or unmarked), which ever is greater.
2. See Figure 4.

6. For railroad crossings: An unobstructed sight distance at all streets intersecting with railroads between an elevation of 2 feet and 8 feet above the adjacent curb height, shall be provided as noted in Table 4. Where visibility can not be provided, a railroad signal or stop sign should be considered.

Table 4 Sight Distance at Railroad Crossings								
Train Speed MPH	**Vehicle Speed (MPH)**							
	10	**15**	**20**	**25**	**30**	**35**	**40**	**45**
10	45	50	55	60	67	71	75	86
15	68	75	83	90	100	107	112	128
20	90	100	110	120	133	143	150	171
25	113	125	138	150	167	179	187	214
30	135	150	165	180	200	214	225	257

7. Exceptions: Exceptions to the vision clearance requirement shall apply:

   a. To traffic control devices, street lights, and utility poles within public rights-of-way and easements meeting City Engineer approval;
   b. To supporting pillars or posts on private property not greater than 12 inches in diameter or as measured along the diagonal of rectangular pillars or posts;
   c. Within the Central Business District.
   d. Where, due to grade, oblique angle of the intersection, or irregular lot shape, vision clearance areas as described in this standard cannot be achieved, the City Engineer may prescribe the dimensions and conditions which will comply with the intent of the vision clearance area described in this section, according to recognized traffic engineering standards.

III. Off-street Loading Facilities

A. For every use or premise mentioned in Section 4.1.30 "c" and "d" of the Corvallis Land Development Code in connection with every building or part thereof hereafter erected and having a gross floor area of 10,000 sq. ft or more, at least 1 off-street loading space shall be provided on site. One additional space shall be provided for each additional 20,000 sq. ft or major fraction thereof. Off-street loading facilities shall conform with the following standards:

   1. Each loading berth shall be not less than 35 ft in length and 10 ft in width and shall have a minimum height clearance of 14 ft.

   2. Sufficient space for turning and maneuvering of vehicles shall be provided on the site in accordance with the standard specifications established by the City Engineer.

   3. Entrances and exits shall be provided at locations approved in accordance with applicable ordinances and statutes.

   4. No off-street loading facilities shall be required where buildings abut a public alley in such a manner that loading operations can be conducted from said alley in accordance with applicable traffic and parking ordinances.

   5. Screening for off-street loading is required and shall be the same as screening for parking lots.

IV. Accessibility Standards

A. Comply with all Americans with Disabilities Act standards.

B. Location and Accessible Route: Parking should be provided nearest the accessible

entrance to a facility. There shall be an accessible route from the parking space(s) to the accessible entrance with a minimum of environmental barriers. Spaces should not be placed on grades (exceeding 2%), unpaved areas, or other hazardous or dangerous areas.

C. Dimensions: "Van accessible" spaces shall be 16 feet wide (8 feet for the vehicle plus 8 feet for an access aisle). Other accessible parking spaces shall be 13 feet wide (8 feet for the vehicle plus 5 feet for an access aisle). When two spaces are required, a common access aisle may be used.

D. Number of Accessible Parking Spaces: Table 5 describes the number of accessible parking spaces required for a development. One in eight accessible parking spaces *(but not less than one)* shall be "van accessible."

Table 5
Number of Accessible Parking Spaces

Total Parking Space Quantity	Minimum Number of Accessible Parking Spaces
1 in 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
201 to 300	7
301 to 400	8
401 to 500	9
501 to 1,000	2% of total
1,001 and over	20 plus 1 per 100 over 1,000

E. Signage: Sign centered at 4 feet in height with the International Symbol of Access with letters minimum 1-inch in height to read:

"PARKING BY DMV DISABLED PERMIT ONLY. VIOLATORS SUBJECT TO TOWING UNDER ORS 487.935 AND A FINE UP TO $250 UNDER ORS 487.930".

F. Accessible Route: If the terrain is greater than 1:20, it shall be designated a ramp and must comply with all requirements for ramps.

1. Minimum width: 36 inches. No greater than 1:20 or designated a ramp and must comply with ramp requirements.

2. Passing spaces on accessible routes which are less than 60 inches wide shall be at no greater than 200 foot intervals.

3. No level changes on an accessible route greater than ½ inch.

4. Accessible routes should avoid all environmental barriers including gratings, manhole covers, and protruding objects. If gratings are present, the spaces in the gratings shall be no greater than ½ inch running perpendicular to the direction of travel. Consideration should be given to insuring that an accessible route does not cross an area laden with traffic, or other area potentially dangerous to a disabled individual.

5. If there are changes of level in the accessible route, the following requirements must be met:

0 to ¼ inch	No edge treatment required.
¼ to ½ inch	Edge shall be beveled.
½ inch or >	Must comply with ramp provisions.

G. Curb Ramps**:** Curb ramps shall be (see Standard Details 106, 107A, and 107B):

1. No greater than 1:12.

2. No higher than 30 inch rise.

3. Minimum width of 36 inches, not including flares.

4. Flares no greater than 1:10

5. Textured with tactile warning.

6. Placed within the crosswalk.

H. Ramps:

1. New construction: Ramps shall be no greater than 1:12 with a minimum width of 36 inches and a maximum rise of 30 inches.

2. Existing construction: Ramps greater than 1:10 but less than 1:8 shall have a maximum rise of 3 inches and a maximum run of 2 feet. Ramps greater than

1:12 and less than 1:10 shall have a maximum rise of 6 inches and a maximum run of 5 feet.

3. General**:** If ramp has greater than a 6 inch rise, handrails must be provided on both sides.

   A. They shall extend 12 inches beyond the top and bottom of the ramp
   B. They shall be placed 1 ½-inch from the wall
   C. They shall have a gripping surface in a diameter of 1 ¼-inch to 1½ -inch
   D. The ram shall have a 2-inch edge protection for all potential drop-off areas

4. Landings: If landings are required, the following requirements must be met:

   A. Landings at both top and bottom of ramp.
   B. Landings a minimum of 36 inches wide or as wide as the ramp run.
   C. Length of landings: a minimum of 60 inches.
   D. If the ramp changes directions at a landing, then a minimum landing dimension of 60 inches by 60 inches shall be provided.

V. Pedestrian Sidewalks

A. Street Frontage Sidewalks - Sidewalks shall be required to be installed, in conjunction with development or redevelopment of a site (generally with building permits), along all property lines adjacent street frontages. The City of Corvallis has developed standards for pedestrian sidewalks and wheelchair ramps. The standard drawings for sidewalks and wheelchair and bicycle ramps are shown on Standard Details 106, 107, 107A and 107B. Sidewalk installation performed in the right-of-way requires a permit. Individuals who perform concrete work in the right-of-way are required to provide proof of insurance and qualifications in accordance with Section 2.15.080 of the City Municipal Code.

B. Private Sidewalks: Internal pedestrian circulation shall be encouraged in new developments by clustering buildings, constructing convenient pedestrian ways, and/or constructing skywalks where appropriate. Pedestrian walkways shall be provided in accordance with the following standards:

   1. The on-site pedestrian circulation system shall connect the sidewalk on each abutting street to the main entrance of the primary structure on the site to minimize out-of-direction pedestrian travel.

   2. Walkways shall be provided to connect the on-site pedestrian circulation system with existing or planned pedestrian facilities which abut the site but are not adjacent to the streets abutting the site.

   3. Walkways shall be as direct as possible and avoid unnecessary meandering.

4. Walkway/driveway crossings shall be minimized, and internal parking lot circulation design shall maintain ease of access for pedestrians from abutting streets, pedestrian facilities, and transit stops.

5. With the exception of walkway/driveway crossings, walkways shall be separated from vehicle parking or maneuvering areas by grade, different paving material, or landscaping. They shall be constructed in accordance with the sidewalk standards adopted by the City Engineer. (This provision does not require a separated walkway system to collect drivers and passengers from cars that have parked on site unless an unusual parking lot hazard exists).

C. Sidewalk Material: Sidewalks and ambulatory ramps shall be constructed of 3,000 PSI minimum compressive strength concrete or other hard material approved by the City Engineer.

VI. Stormwater Conveyance Systems

A. Stormwater Conveyance Systems: The City of Corvallis has developed the following standards on the conveyance of stormwater runoff:

1. Parking lots or access roads with a contribution drainage area of 1,000 square feet or greater shall either:
   a. Have catch basin(s) on-site and a storm drain system to direct storm runoff to the nearest public storm drain system or drainage channel unless such a facility is deemed too far away by the City Engineer, or
   b. If approved by the City Engineer, sheet flow to a water quality facility designed in accordance with the King County, Washington Surface Water Design Manual.

2. Parking lots or access roads with a contribution drainage area of 1,000 square feet or greater shall not drain to the street unless otherwise approved by the City Engineer and such drainage shall not be allowed across the public sidewalk area.

3. Catch basins and storm drains shall be designed to convey and contain the peak runoff flow from the 10-year design event. No surcharging of the system is allowed for the 10-year storm event. Conveyance system capacity shall be determined for most conveyance facilities using the Rational Method.

4. A hydrograph technique shall be used for designing facilities draining areas larger than 25 acres or for sites that have a time of concentration longer than 100 minutes. Acceptable hydrograph techniques include the Soil Conservation Service (SCS) TR-55 or TR-20 methods. The SCS Type 1A rainfall distribution for the 10-year, 24-hour storm shall be used with the hydrograph techniques.

5. The minimum storm drain pipe size shall be 10 inches, unless a detailed storm

drain design is submitted by the developer's engineer.

6. All storm drains shall be designed at a grade that will produce a mean velocity when flowing full or half-full of at least two (2) feet per second.

7. Catch basins shall be constructed in accordance with the Oregon Plumbing Specialty Code Section 1108.

8. Facilities shall be designed so that water flowing in the street shall not be allowed to enter the off-street parking lots nor access drives.

9. The storm water conveyance system shall be designed so the 10-year design piping system is supplemented with an overland conveyance component demonstrating the safe passage of the 100-year, 24-hour SCS Type 1A storm event. The overland component shall not be allowed to flow through or inundate existing buildings.

10. To attach an on-site drainage system to a combination sewer requires specific approval by the City Engineer. In addition, the connection shall only be made to a manhole or existing catch basin.

VII. Stormwater Detention Systems

A. When Required: Development projects that create impervious surfaces (roads, driveways, parking lots, walks, patios, and roofs) in excess of 25,000 square feet are required to implement stormwater detention and/or retention measures as specified in the Corvallis Design Criteria Manual. Detention facilities shall be designed to maximize stormwater infiltration.

1. Exemptions to Stormwater Detention Requirements:
   a. Properties east of the Marys River and south of Highway 20/34 are exempt from detention requirements because of their proximity to the Marys River and the need for quick dispersion of storm water.
   b. Detention is not required if infiltration methods can be demonstrated to be feasible. A soil map or geotechnical report is required to document the infiltration rates of the soils in the area of the proposed infiltration facility. Infiltration shall not be allowed in areas with slopes over 10 percent.
   c. Stormwater facilities south of Goodnight Avenue shall be constructed in accordance with the requirements of the South Corvallis Drainage Master Plan.

B. Design Criteria: Detention facilities shall be designed in accordance with criteria as established in the most recent version of the *King County, Washington Surface Water Design Manual* and shall be designed to capture run-off so the run-off rates from the site after development do not exceed the predeveloped conditions, based on the 2-year through 10-year, 24-hour design storms. The following design criteria shall also be followed:

1. Parking areas should not be used as detention facilities except for larger storm

events. Up to 6-inches of water depth is allowed to be detained in parking areas for storm events larger than the 10 year return event.

2. Detention of stormwater shall be limited to a single facility, rather than a series of smaller detention facilities, whenever possible. Detention facilities may be designed as combination detention and water quality facilities. Detention facilities may be designed "in-line"with water quality facilities.

3. The detention facility must be designed to safely pass storms up to the 100-year, 24-hour event.

VIII. Stormwater Quality Facilities

A. When Required: All new development and redevelopment are required to construct water quality facilities to reduce contaminants entering the storm collection and surface water systems. In accordance with King County, Washington Surface Water Design Manual Core Requirement #8, projects that cumulatively create less than 5,000 square feet of pollution generating impervious surface (pavement accessible to motor vehicles) are exempt from water quality facility requirements.

B. Design Criteria: Water quality facilities shall be designed in accordance with criteria as established in the most recent version of the *King County, Washington Surface Water Design Manual*. The water quality facilities shall be designed to remove 70 percent of the total suspended solids (TSS) entering the facility during the water quality design storm (2/3 of the 2-year, 24-hour). The following design criteria shall also be followed:

1. Acceptable water quality facilities include vegetated swales, water quality ponds, sedimentation ponds, water quality inlets, and infiltration facilities.

2. The use of infiltration facilities is recommended where soil and slope conditions permit the use of this type of facility and the facilities do no have an adverse impact to adjacent or downhill properties.

3. The use of multiple water quality facilities may be required to meet the performance standard. Chapter 6 of the King County Surface Water Manual identifies seven types of treatment facilities that will meet the performance standards.

4. Water quality facilities must be designed to safely pass without damage to the facility flows in excess of the water quality design storm up to the 100-year, 24-hour event. For some facilities, a bypass system will be required.

IX. Paving Standards

A. Where Pavement is Required: All driveways, access roads, off-street parking areas, maneuvering areas, and loading areas shall be paved with either asphaltic concrete, portland cement concrete, or other approved hard surface. Gravel is not an approved surface.

B. Flexible Pavement: The City of Corvallis has developed standards for the minimum required structural section of off-street parking and access facilities when detailed engineering calculations and soil tests are not presented with a design. The flexible pavement sections are as follows:

Description	Asphaltic Concrete Wearing Surface	Aggregate* Sub-base
Residential	3 inches	8 inches
Commercial/Light Industrial	4 inches	11 inches
Industrial	4 inches	16 inches

* Any unsuitable sub-grade material shall be removed and replaced with pit run or other suitable aggregate prior to placing base rock.

These values were arrived at by using the Oregon State Department of Transportation "Flexible Pavement Design Procedure", using typical traffic coefficients and R-values found in the City of Corvallis.

A section of 3-inch asphaltic concrete shall have 2 inches Class "B" plus 1 inch Class "C" asphaltic concrete. For a section of 4-inch asphaltic concrete, it shall have 2 inches Class "B" plus 2 inches Class "C" asphaltic concrete. The Oregon State Department of Transportation Standard Specification for both Class "B" and Class "C" asphaltic concrete mix shall be used with the asphalt being AR 4,000 and content being 6 percent by weight.

C. Detailed Flexible Pavement Design: In lieu of the above-listed minimum pavement sections, detailed engineering calculations conforming with the following criteria shall be provided:

1. Soil Tests - Conduct two soil tests for projects that have 10,000 square feet or less of new pavement. An additional soil test is required for each additional 10,000 square feet of pavement. For asphalt pavements, conduct soil testing to determine the design subgrade resilient modulus (Mr) within the top 2 feet of the proposed subgrade elevation. Tests shall be conducted by a qualified independent testing laboratory with copies of the test results submitted to the City.

2. Design Life - 20 years

3. Design Procedure - Asphalt Pavements -- The design procedures contained in the following references are preferred.
   - *AASHTO Guide for Design of Pavement Structures*, 1986. American Association of State Highway and Transportation Officials.
   - *Thickness Design - Asphalt Pavements for Highways and Streets*. The Asphalt Institute, September 1991 (MS-1).

4. The minimum allowable structural thicknesses are as follows:

Asphaltic concrete	2 inches
Aggregate base	6 inches
Lime treated sub-grade	6 inches
Cement treated base	6 inches

D. Rigid Pavement: The City of Corvallis has developed standards for the minimum required structural section of off-street parking and access facilities when detailed engineering calculations and soil tests are not presented with a design.

Description	**PCC Wearing Surface**	**Total Base =**	**3/4"-0 +**	**1/4"-0 or Sand**
Residential	5 inches	3 inches	2 inches	1 inch
Commercial/ Light Industrial	6 inches	3 inches	2 inches	1 inch
Industrial	7 inches	4 inches	3 inches	1 inch

E. Rigid Pavement for Driveway Approaches and Sidewalks: Minimum thickness of Portland cement concrete wearing surface for driveway approaches and sidewalks shall be in accordance with Standard Details 106, 108 and 109. These values were arrived at by using the Portland Cement Association's "Design of Concrete Pavement for City Streets," using typical traffic axle loadings and R-values found in the City of Corvallis.

F. Detailed Rigid Pavement Design: In lieu of the above-listed minimum pavement sections, detailed engineering calculations conforming with the following criteria shall be provided:

1. Soil Tests -- Conduct two soil tests for projects that have 10,000 square feet or less of new pavement. An additional soil test is required for each additional 10,000 square feet of pavement. Tests shall be conducted by a qualified independent testing laboratory with copies of the test results submitted to the City.

2. Structural sections shall be designed in accordance with the Portland Cement Association's "Design of Concrete Pavement for City Streets". The sub-grade R-value shall be determined for both 95 percent maximum density and 300 PSI exudation pressure from a minimum of two separate samples. The City shall be notified prior to sampling so that a representative may be present. The test shall be conducted by a qualified independent testing laboratory with copies of the text results submitted to the City.

3. The following axle loadings shall be used as minimums:

	Axle Loading	**Axles/Day**
Residential	18 Kips 32 Kips	0.01 0.01
Commercial/Light Industrial	18 Kips 32 Kips	10.50 4.30
Industrial	18 Kips 32.Kips	288.50 125.00

4. The minimum allowed structural thicknesses are as follows:

Portland Cement Concrete	4 inches
Aggregate base	2 inches

5. The concrete used shall have a minimum compressive strength of 3,000-4,000 PSI depending on use and placed in accordance maximums and minimums.

X. Grading

A. Finished grade for parking lot and access roads shall conform to the following maximums and minimums:

Description	**Max. Slope**	**Min Slope**
Access Road (Residential)		
Longitudinal slope	20.0%	0.6%
Cross slope	3.0%	3.0%
Parking Lot (Asphalt Pavement)		
Longitudinal slope	5.0%	2.0%
Cross slope	2.0%	2.0%
Parking Lot (Concrete Pavement and Gutters)		
Longitudinal slope	5.0%	1.0%
Cross slope	2.0%	1.0%
Single Family Driveway	15.0%	2.0%
Single Family Residence		
Off-Street Parking Space	10.0%	2.0%

B. Driveways - No driveway shall traverse a slope in excess of 15 percent at any point along the driveway length. Requests for exceptions to these requirements will be evaluated by the City Engineer considering the physical limitations of the lot and safety impacts to vehicular, bicycle, and pedestrian traffic.

C. Excavation and Grading Permit - Excavation and grading permits are required in accordance with the Oregon Structural Specialty Code Appendix Chapter 33. Projects where more than 50 cubic yards of soil material is being moved typically require a permit.

XI. Plan Submittal

Construction plans for off-street parking facilities and access roads shall be drawn to an appropriate scale showing all pertinent dimensions. Plans shall be submitted to the City Engineer through the Development Services Division for review, and they shall include locations and details of the following:

1. Plan view of facility (site plan)
2. Parking space layout including handicap spaces, signage and associated dimensions
3. Maneuvering aisles
4. Wheel stops
5. Curbs
6. Gutters
7. Sidewalks
8. Wheelchair ramps
9. Driveway approach aprons
10. Catch basins
11. Storm drains
12. Finished grades and existing elevations
13. Existing utilities in area and easements
14. Existing street improvements and grades in area
15. Landscaping and Irrigation Plans

Upon request from the City Engineer, design calculations shall be supplied by applicant to the City Engineer for:

1. Hydrology of improved lot
2. Hydraulics of proposed catch basin storm drain laterals and storm drain main
3. Structural calculations for proposed pavement and sub-base design

XII. Figures

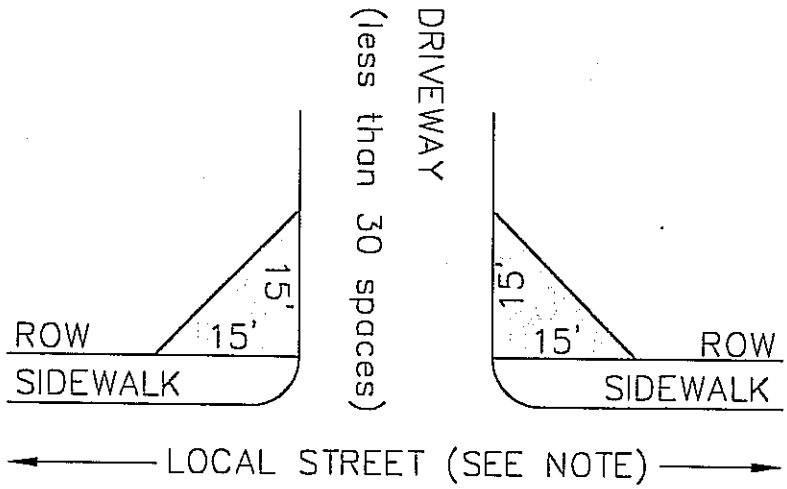


FIGURE 1

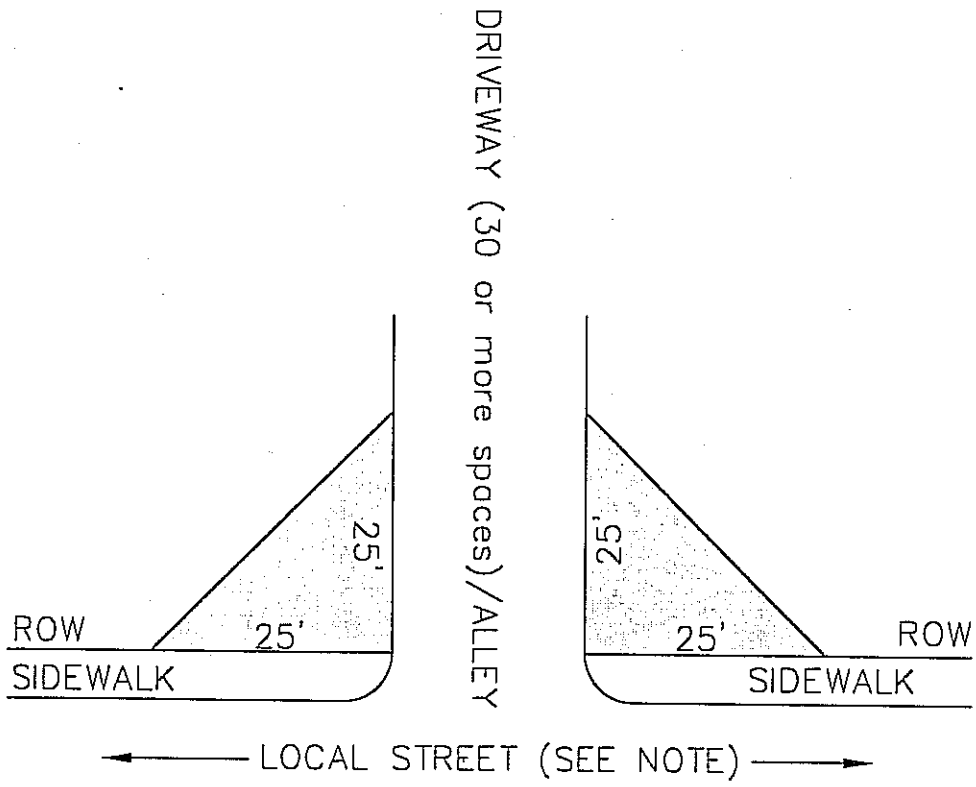


FIGURE 2

NOTE: DRIVEWAY OR ALLEY ON COLLECTOR OR ARTERIAL STREET SHALL CONFORM TO SECTION C, STOP CONTROL, OF THE GENERAL VISION CLEARANCE

IED K Munts	
DRAWN BY K Munts	
CHECKED	
DATE 5/1/01	
SCALE: AS SHOWN	

CITY OF CORVALLIS
Public Works Department
SCALE
0 20' 40'

CORVALLIS
ENHANCING COMMUNITY LIVABILITY

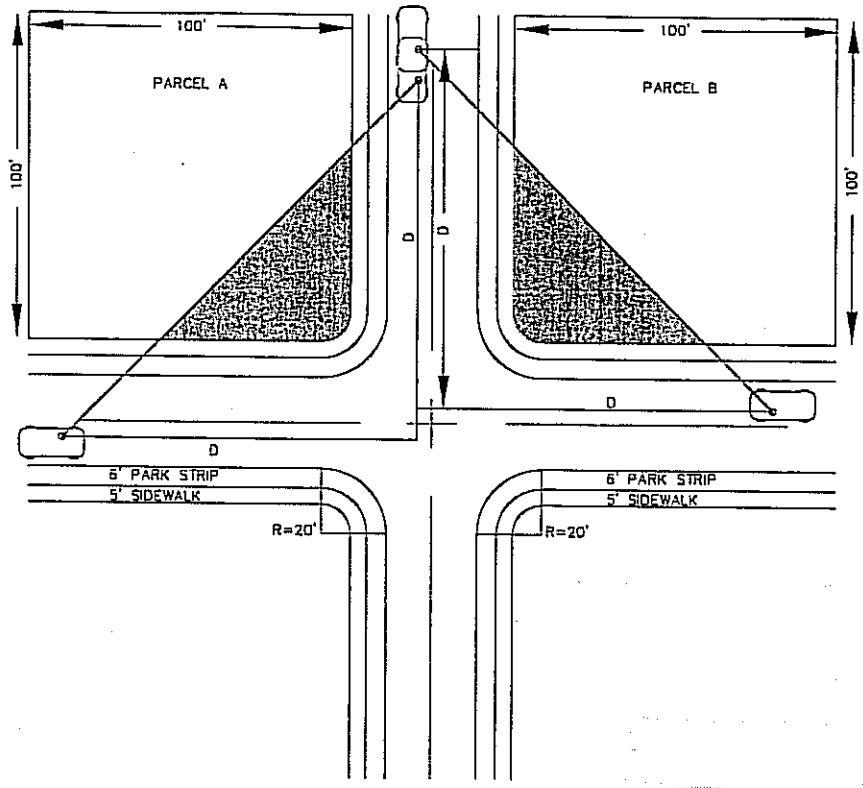
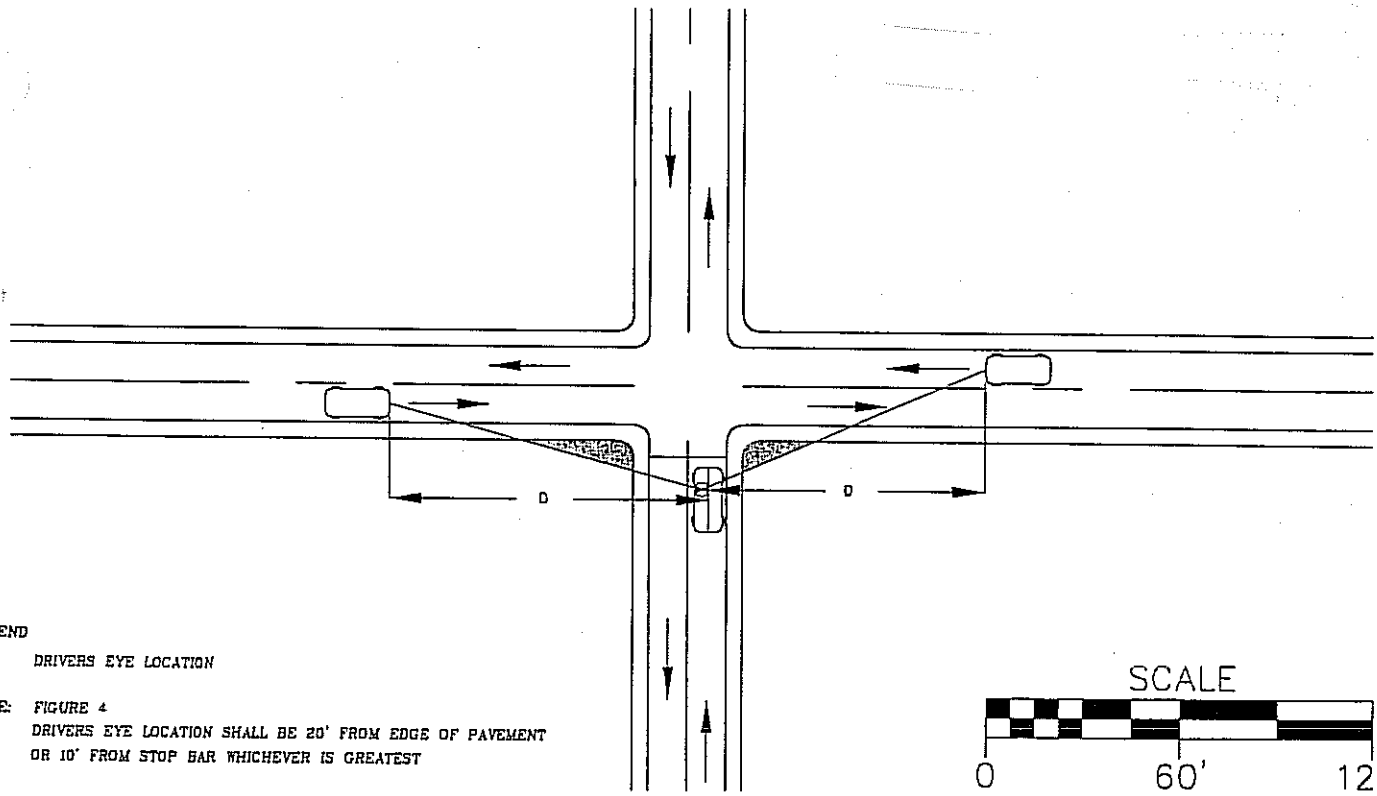


FIGURE 3



LEGEND

⊖ DRIVERS EYE LOCATION

NOTE: FIGURE 4
DRIVERS EYE LOCATION SHALL BE 20' FROM EDGE OF PAVEMENT
OR 10' FROM STOP BAR WHICHEVER IS GREATEST

SCALE
0 60' 120'

FIGURE 4

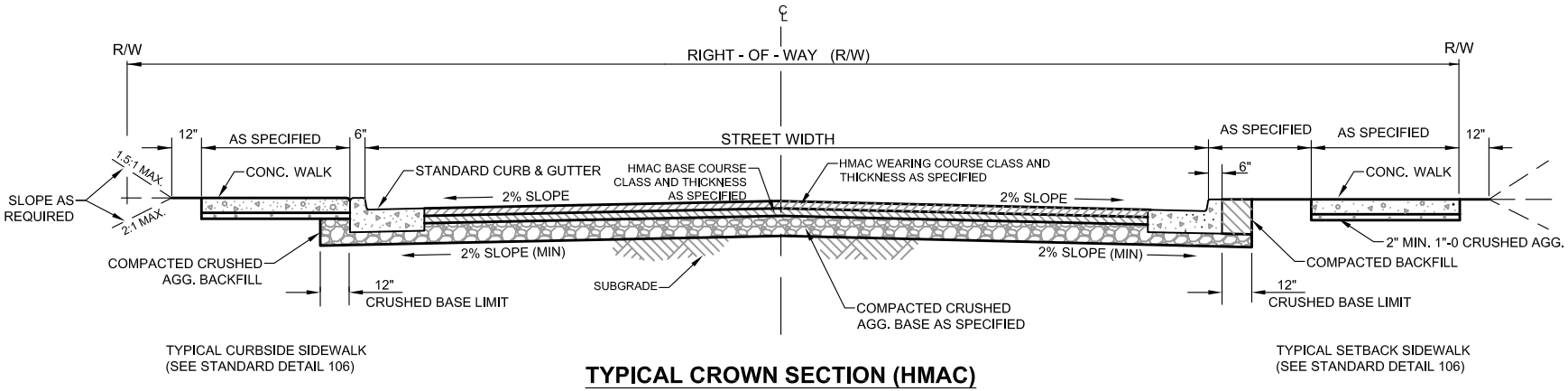
IED K Munts	
DRAWN BY K Munts	
CHECKED	
DATE 5/1/01	
SCALE: AS SHOWN	

CITY OF CORVALLIS
Public Works Department

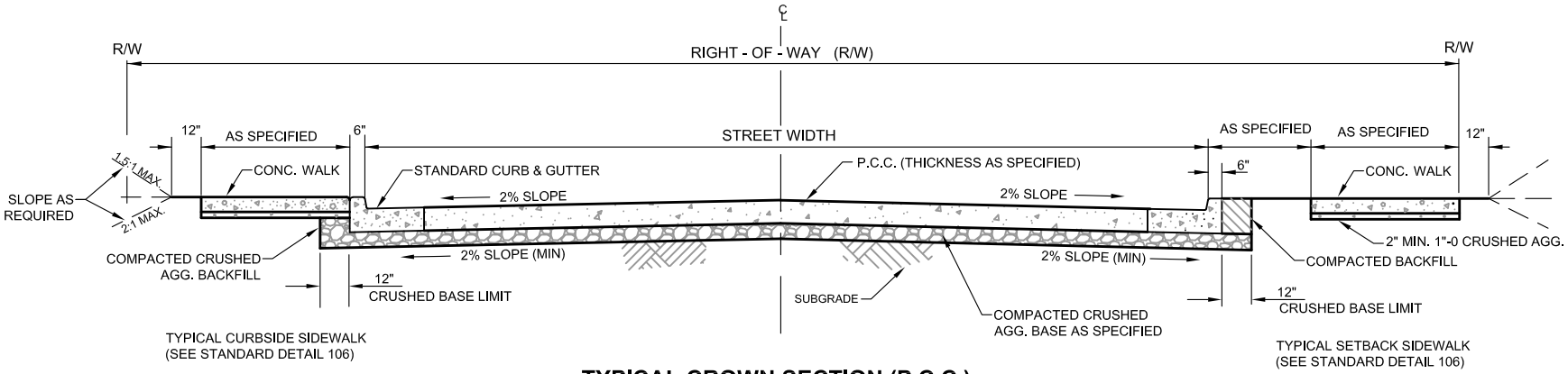
CORVALLIS
ENHANCING COMMUNITY LIVABILITY

XIII. Standard Details

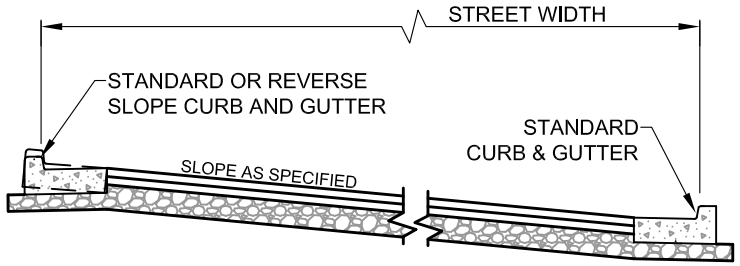
Number	Title of Detail
101	Typical Street Sections
102	Typical Concrete Street-Contraction Joint Detail
103	Curb Construction Details
103A	Wide (6'-0") Curb and Gutter Detail
103B	Monolithic Curb for Sidewalks and Ramps
104	Valley Gutter Details
106	Standard Sidewalk Detail
107	Standard Wheelchair Ramps
107A	Standard Wheelchair Ramps
107B	Standard Wheelchair Ramps
108	Driveway in Setback Sidewalk
108A	Driveway in Curbside Sidewalk
108B	Driveway in Curbside Sidewalk
109	Valley Gutter Across Intersection & Standard Commercial Driveway Approach
110	Street Cut Detail
111	Parking Stall Layout
112	Fire Apparatus Turnaround
113	Garage Approaches and Turns
503	Inverted “U” Bike Rack



TYPICAL CROWN SECTION (HMAC)



TYPICAL CROWN SECTION (P.C.C.)



TYPICAL SHED SECTION

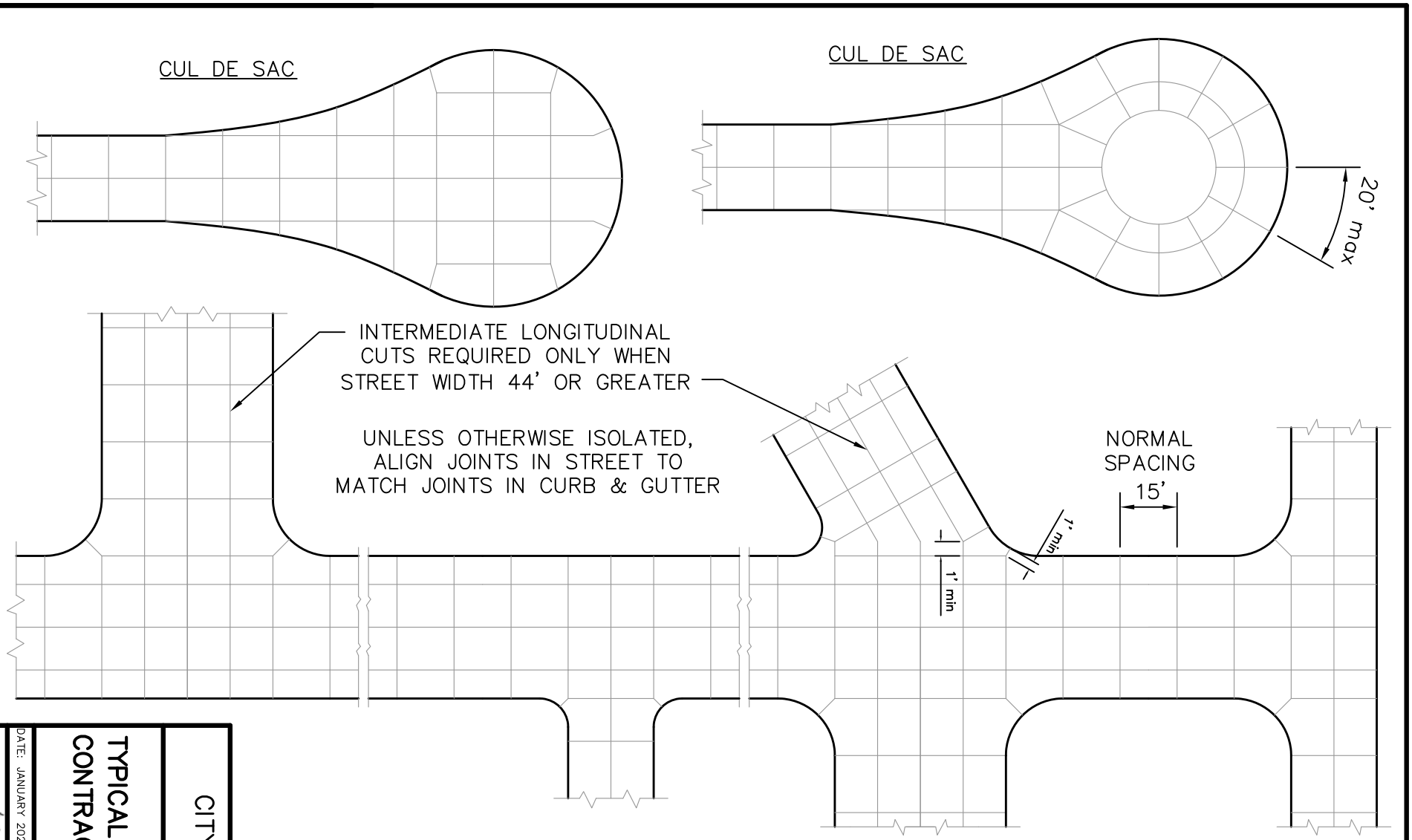
NOTES:

1. SIDEWALK BENCHES SHALL BE INCLUDED IN ALL STREET EXCAVATION OR EMBANKMENT UNLESS OTHERWISE SPECIFIED OR APPROVED BY THE ENGINEER.
2. PAVING WIDTHS AND NUMBER OF PANELS SHALL BE AS APPROVED BY THE ENGINEER TO AVOID THE COINCIDENCE OF THE WHEEL PATHS AND THE PAVING JOINTS.
3. FOR SHED SECTIONS, REVERSE SLOPE OF UPPER GUTTER PAN IF DRAINAGE ALLOWS.
4. DIMENSIONS AND CALL-OUTS ARE SYMMETRICAL UNLESS OTHERWISE NOTED.

TYPICAL STREET SECTIONS

CITY OF CORVALLIS
ENGINEERING DIVISION

APPROVED:
DATE: JANUARY 2020
SCALE: NONE
STANDARD DETAIL No. 101



CONTRACTION JOINT PATTERNS SHALL, AS CLOSE AS PRACTICABLE, APPROXIMATE A SQUARE PATTERN

CITY OF CORVALLIS
ENGINEERING DIVISION

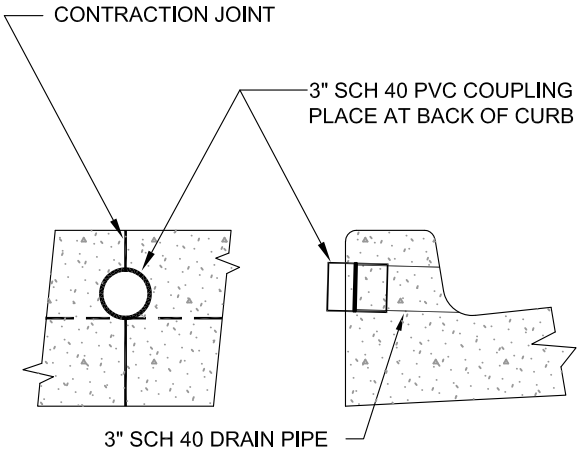
TYPICAL CONCRETE STREET CONTRACTION JOINT DETAIL

APPROVED:

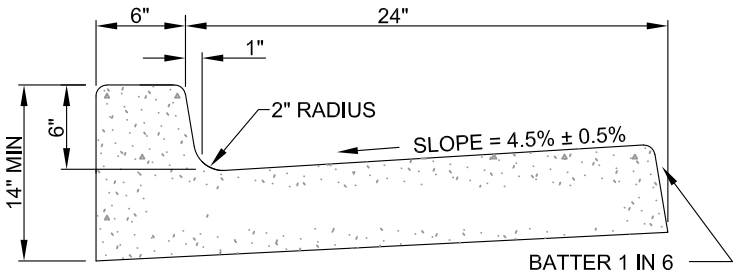
DATE: JANUARY 2020

SCALE: NONE

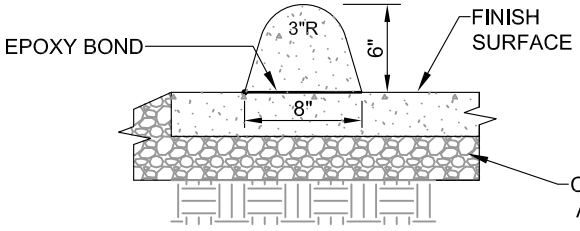
STANDARD DETAIL No. 102



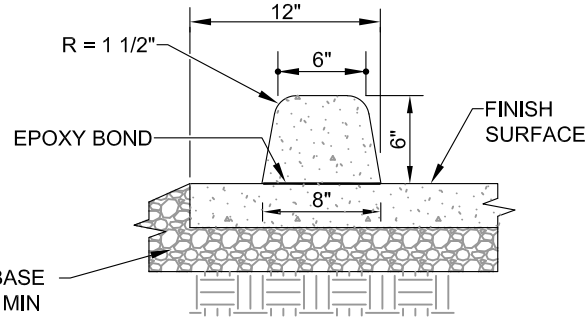
WEEP HOLE THROUGH CURB



STANDARD CURB & GUTTER



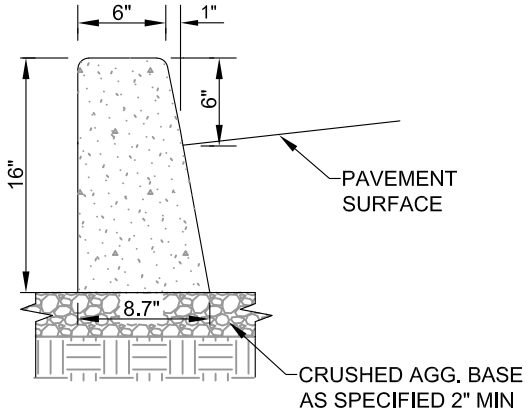
EXTRUDED BONDED CURB TYPE A



EXTRUDED BONDED CURB TYPE B

NOTES:

1. ALL RADII SHALL BE 1/4" EXCEPT AS OTHERWISE NOTED.
2. EXPANSION JOINTS SHALL BE PLACED AT ALL CONSTRUCTION JOINTS AS DIRECTED.
3. CONTRACTION JOINTS SHALL BE PLACED AT APPROX. 15' INTERVALS AND SHALL EXTEND A MIN. 1/3 THROUGH THE CURB OR CURB & GUTTER BUT NOT MORE THAN 1/2.
4. THE ULTIMATE COMPRESSIVE STRENGTH OF THE CONCRETE SHALL BE AS SPECIFIED.
5. WEEP HOLES SHALL BE PLACED AT CONTRACTION JOINTS.
6. WEEP HOLES INSTALLED IN EXIST. CURB SHALL BE CORED ONLY, ON MIN. 12" CENTERS.
7. REFER TO STANDARD SIDEWALK RAMP DETAILS FOR INTERSECTION CURB RADII DETAILS.
8. THE USE OF EXTRUDED BONDED CURBS SHALL ONLY BE BY SPECIFIC APPROVAL OF THE ENGINEER.
9. EXTEND WEEPHOLES TO BACK OF WALK WHEN SIDEWALKS ARE CONSTRUCTED AND INSTALL COUPLINGS AT BACK OF WALK.
10. FOR CONCRETE STREETS, MATCH STREET AND CURB & GUTTER JOINTS.



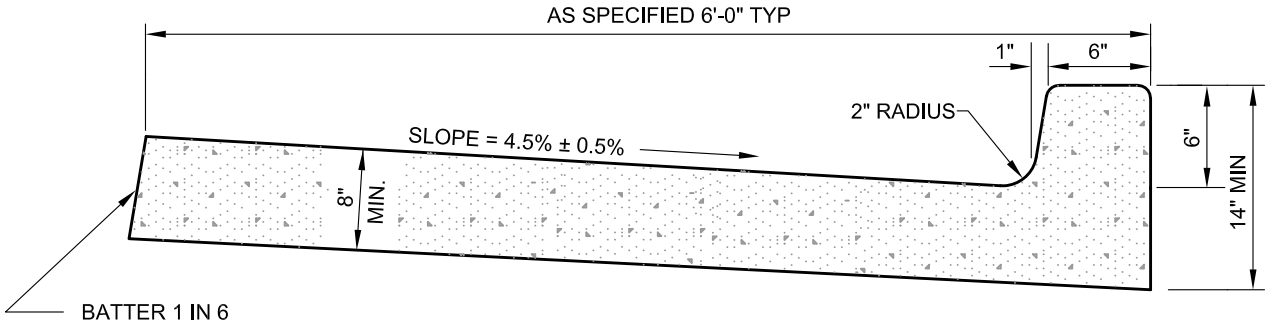
TYPICAL STRAIGHT CURB

CITY OF CORVALLIS

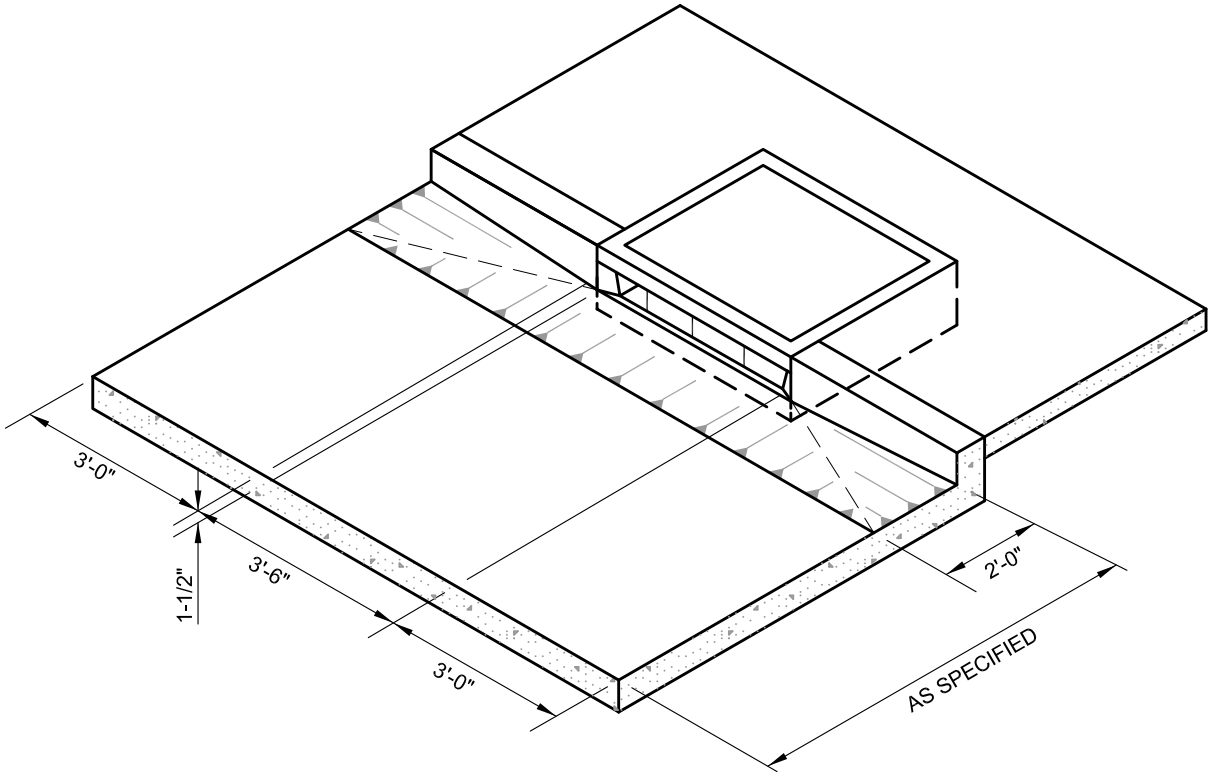
ENGINEERING DIVISION

CURB CONSTRUCTION

DATE: JANUARY 2020	SCALE: NONE	STANDARD DETAIL No.
APPROVED:		103



STANDARD WIDE CURB & GUTTER



PERSPECTIVE VIEW SHOWING GUTTER PAN WITH DEPRESSED GUTTER AT CURB INLET

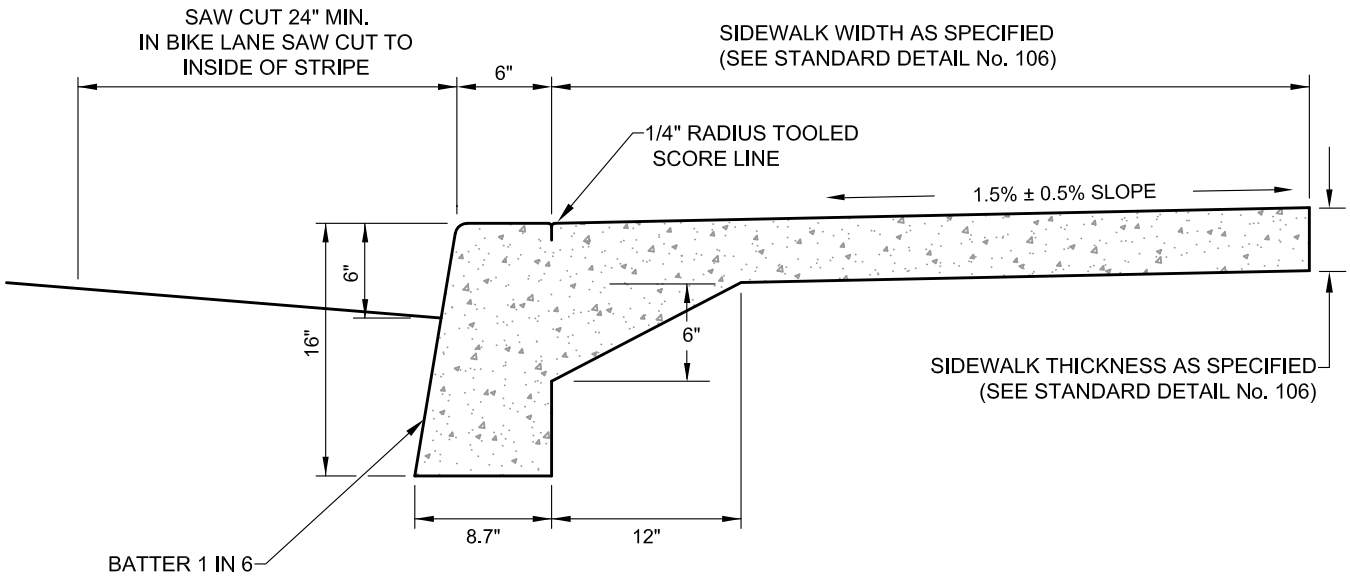
NOTES:

1. ALL NOTES APPLICABLE TO STANDARD DETAIL No. 103 SHALL APPLY.
2. SEE STANDARD DETAIL No. 209 FOR CURB INLET DETAILS.
3. ALL JOINTS SHALL BE GREEN CUT PER SECTION II.5.D.06.

CITY OF CORVALLIS
ENGINEERING DIVISION

STANDARD WIDE
CURB AND GUTTER

DATE: JANUARY 2020	SCALE: NONE	STANDARD DETAIL No.
APPROVED:		103A



STANDARD CROSS SECTION

NOTES:

1. SEE STANDARD DETAILS No. 103 & No. 106 FOR STANDARD NOTES.

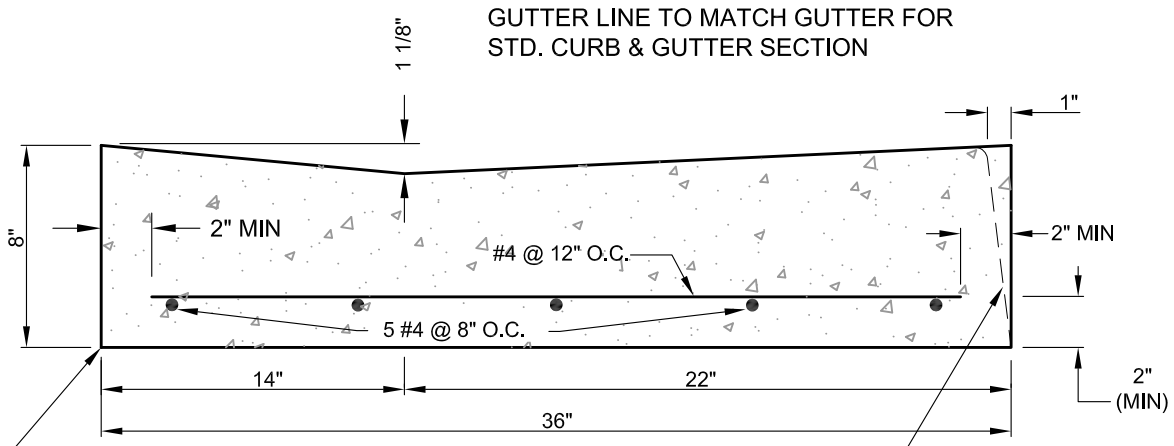
2. THE CONTRACTOR SHALL ENSURE THAT SIDEWALK IN DRIVEWAY APPROACHES MEET UNITED STATES ACCESS BOARD STANDARDS.

CITY OF CORVALLIS

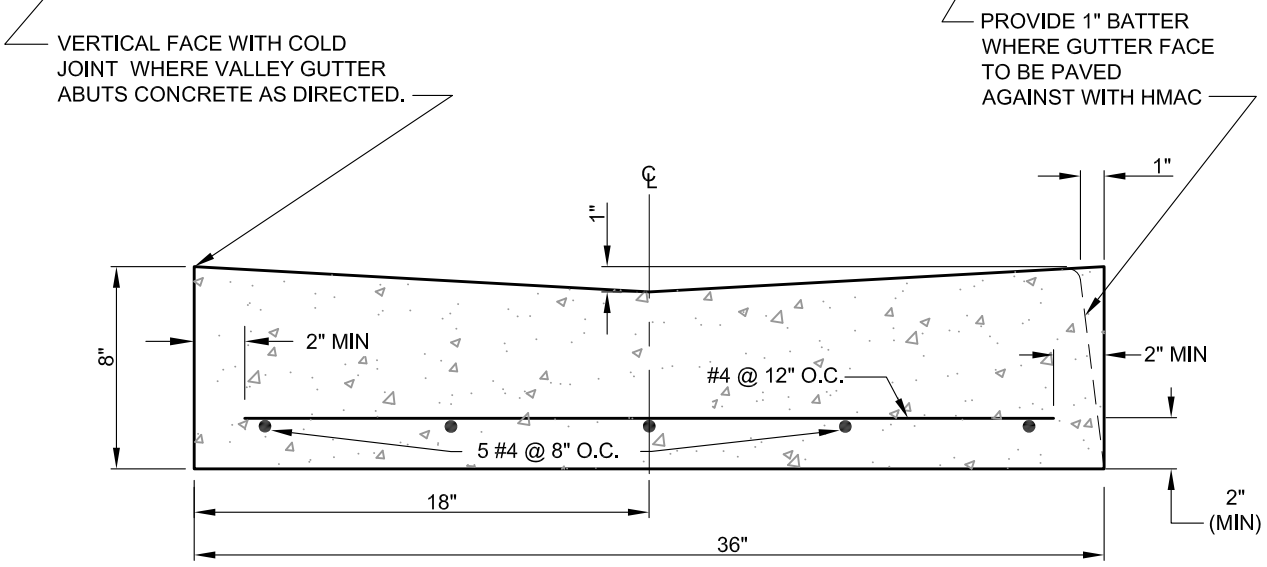
ENGINEERING DIVISION

MONOLITHIC CURB FOR SIDEWALK AND RAMPS

DATE: JANUARY 2020	SCALE: NONE	STANDARD DETAIL No.
APPROVED:		103B



CONCRETE -- NON-SYMMETRICAL "V" GUTTER



CONCRETE SYMMETRICAL "V" TYPE GUTTER

NOTES:

1. BAR REINFORCEMENT REQUIRED IN VALLEY GUTTERS ONLY WHEN USED AS PART OF COMMERCIAL DRIVEWAYS, INTERSECTIONS, OR WHEN HEAVY TRUCK TRAFFIC IS EXPECTED.

2. CONCRETE SHALL ATTAIN A 28 DAY MINIMUM COMPRESSIVE STRENGTH OF 4000 P.S.I.

3. THE TOTAL WIDTH OF THE NON-SYMMETRICAL "V" GUTTER MAY BE REDUCED TO 30" WHEN CONSTRUCTED WITH A CURB-EXTRUSION MACHINE.

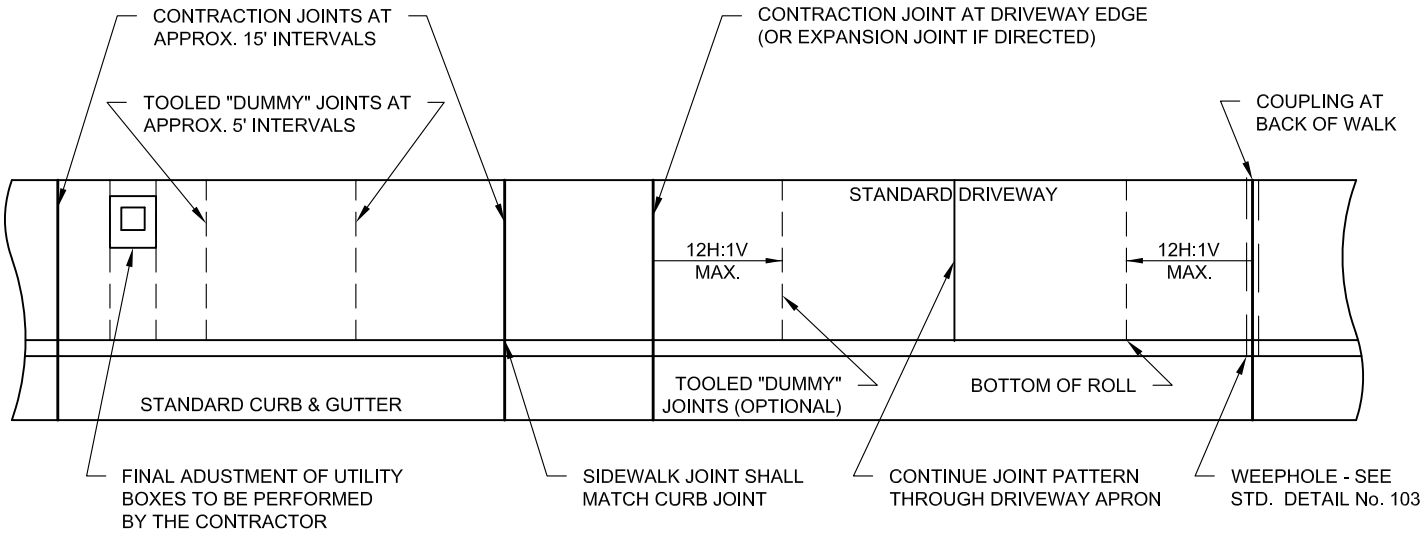
4. CONTRACTION JOINTS SHALL BE PLACED AT APPROXIMATELY 15 FT INTERVALS AND SHALL EXTEND A MINIMUM OF 50% THROUGH THE GUTTER PAN THICKNESS.

CITY OF CORVALLIS

ENGINEERING DIVISION

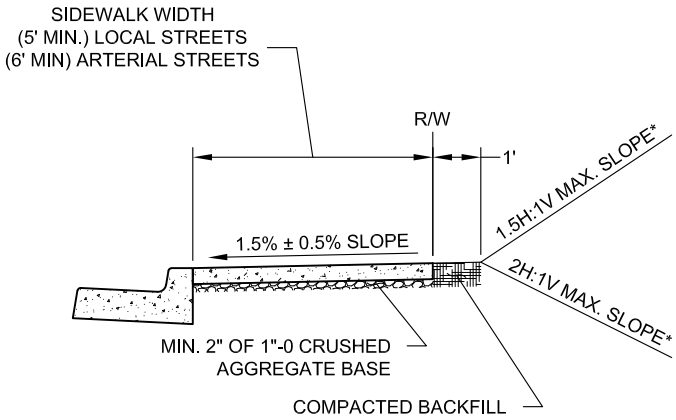
VALLEY GUTTER

DATE: JANUARY 2020	SCALE: NONE	STANDARD DETAIL No.
APPROVED:		104

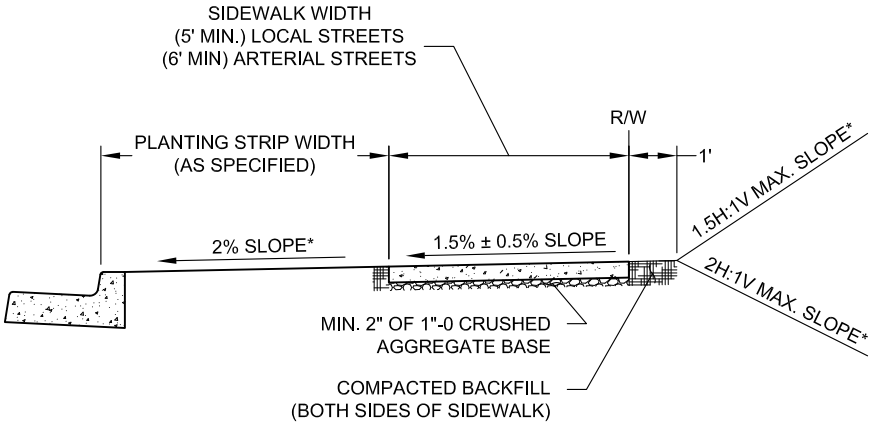


TYPICAL PLAN VIEW

APPLIES TO BOTH CURBSIDE AND SETBACK SIDEWALKS



TYPICAL CURBSIDE SIDEWALK CROSS SECTION



TYPICAL SETBACK SIDEWALK CROSS SECTION

NOTES:

1. SIDEWALKS SHALL BE LOCATED TO PROVIDE A 6-FOOT PLANTING STRIP ON LOCAL AND LOCAL COLLECTOR STREETS, AND A 12-FOOT PLANTING STRIP ON NEIGHBORHOOD COLLECTOR, COLLECTOR, AND ARTERIAL STREETS. WHERE INADEQUATE ROW EXISTS, A REDUCTION IN PLANTING STRIP WIDTH MAY BE ALLOWED WITH PRIOR APPROVAL OF THE ENGINEER.
2. STANDARD SIDEWALK CROSS SLOPE SHALL BE 1.5% ± 0.5%. WHEN THE LOT IS BELOW THE TOP OF THE CURB AND SLOPES AWAY FROM THE CURB, A MINUS 1.5% ± 0.5% SLOPE MAY BE REQUIRED, AS DIRECTED BY THE ENGINEER.
3. CONCRETE DEPTH FOR STANDARD SIDEWALKS SHALL BE NOMINAL 4" MIN. SINGLE FAMILY RESIDENTIAL DRIVEWAY SECTIONS INCLUDING SIDEWALKS THROUGH DRIVEWAYS SHALL BE NOMINAL 6" MIN. ALL OTHER DRIVEWAY SECTIONS SHALL BE NOMINAL 8" MIN. ALL CONCRETE SHALL BE PLACED OVER 2" MIN. CRUSHED AGGREGATE BASE.
4. CONTRACTION JOINTS SHALL BE INSTALLED AT APPROX. INTERVALS OF 15 FEET BY CUTTING A MIN. 1/3 OF THE DEPTH OF THE CONCRETE BUT NOT MORE THAN 1/2. "DUMMY" JOINTS SHALL BE INSTALLED AT APPROX. INTERVALS OF 5 FEET.
5. "DUMMY" JOINTS MAY BE CUT AS STANDARD WEAKENED PLANE CONTRACTION JOINTS IF THE CONTRACTOR SO ELECTS, OR TOOLED WITH A 1/4" RADIUS.
6. THE AREA BEHIND THE SIDEWALK IS TO BE BACKFILLED WITH COMPACTED BACKFILL AS SHOWN ON THE PLAN AND AS DIRECTED. THE BACKFILL SHALL APPLY TO BOTH SIDES OF THE SIDEWALK ON A SETBACK SIDEWALK.

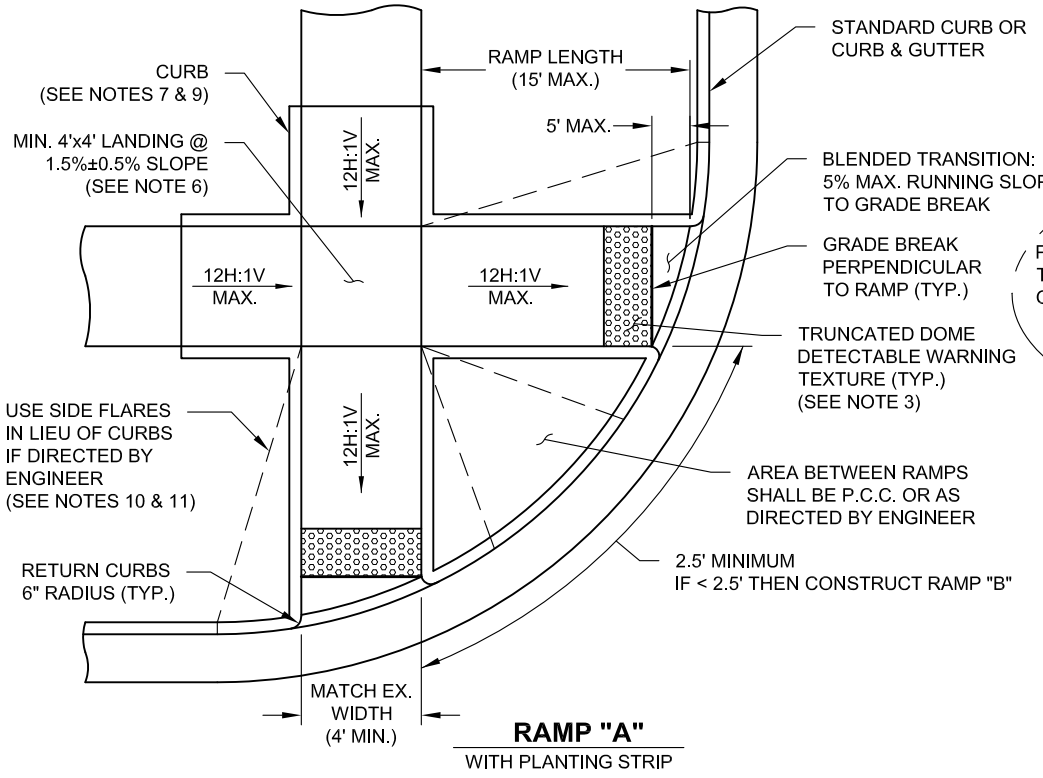
* UNLESS APPROVED OR DIRECTED OTHERWISE BY THE ENGINEER.

CITY OF CORVALLIS

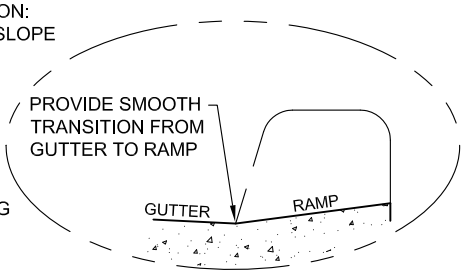
ENGINEERING DIVISION

STANDARD SIDEWALK

DATE: JANUARY 2020	SCALE: NONE	STANDARD DETAIL No.
APPROVED:		106



RAMP "A"
WITH PLANTING STRIP



NOTES:

1. RAMP RUNNING SLOPE MEASURED ANYWHERE ON THE WIDTH OF THE RAMP SHALL NOT EXCEED 12 HORIZONTAL TO 1 VERTICAL (8.3%). RAMP CROSS SLOPE SHALL BE 2% MAX.

2. INDIVIDUAL SITUATIONS MAY REQUIRE SPECIAL DESIGN CONSIDERATION TO ENSURE COMPLIANCE WITH UNITED STATES ACCESS BOARD STANDARDS.

3. PLACE TRUNCATED DOME DETECTABLE WARNING TEXTURE AT BACK OF CURB AS ILLUSTRATED. TEXTURE SHALL BE A MIN. OF 2-FEET DEEP IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE RAMP. COLOR OF TEXTURE TO BE FEDERAL COLOR NO. 22144. ALL TRUNCATED DOMES PLACED WITH IN A HISTORICAL DISTRICT SHALL BE OF CONCRETE MATERIAL. TRUNCATED DOMES PLACE OUTSIDE OF HISTORICAL DISTRICTS SHALL BE OF POLYMER MATERIAL.

4. SAWCUT AND REMOVE THE EXISTING CURB RETURN TO THE OUTER EDGE OF THE SIDE FLARES, UNLESS A JOINT EXISTS WITHIN 5 FEET OF THE SIDE FLARES IN WHICH CASE REMOVE TO THE JOINT.

5. SAWCUT AND REMOVE EXISTING SIDEWALK TO NEAREST FULL PANEL EDGE AS REQUIRED. ANY EXISTING HISTORIC SIDEWALK STAMPS SHALL BE PRESERVED AND INCORPORATED INTO THE NEW WORK IN ACCORDANCE WITH LAND DEVELOPMENT CODE (LDC) SECTION 4.0.30.F.

6. A 4' x 4' LANDING IS REQUIRED AT THE TOP OF ANY RAMP THAT HAS A SLOPE GREATER THAN 2%. IF A CURB, WALL, OR OTHER OBSTRUCTION EXISTS AT THE BACK OF SIDEWALK, THE LANDING SHALL BE INCREASED TO 5' x 4', WITH THE 5' DIMENSION PROVIDED IN THE DIRECTION OF THE RAMP RUN.

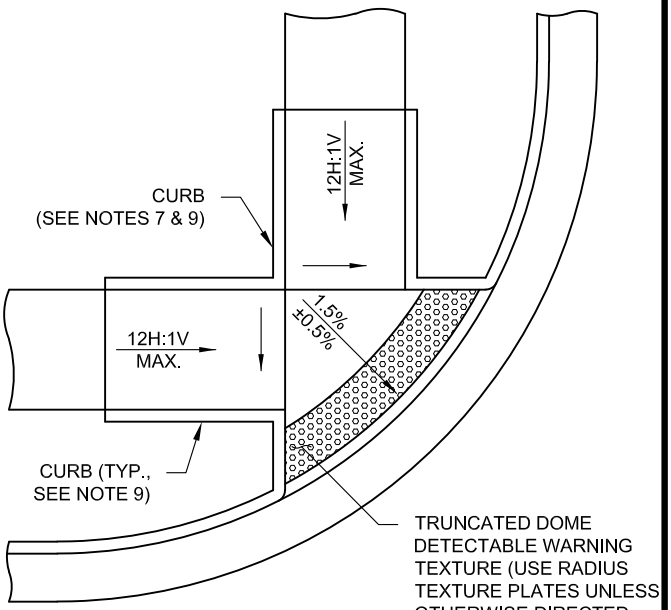
7. IF RIGHT-OF-WAY DOES NOT ALLOW ADEQUATE SPACE FOR CURB TO BE PLACED OUTSIDE OF THE BACK OF WALK, INCORPORATE INTO SIDEWALK WIDTH AS DIRECTED BY ENGINEER.

8. IF PLANTING STRIPS ARE LESS THAN 8 FEET WIDE, RECONSTRUCT ADDITIONAL SIDEWALK OUTSIDE OF RAMP AREA TO ALLOW FOR A 12H:1V MAX. SLOPE.

9. CURBS SEPARATING LANDSCAPED AREAS FROM RAMPS ARE FOR RETAINING PURPOSES. WHERE APPROPRIATE GRADING MEASURES ARE TAKEN, CURBS MAY BE ELIMINATED WITH PRIOR APPROVAL OF THE ENGINEER.

10. SIDE FLARES THAT ARE NOT PART OF THE PATH OF TRAVEL SHALL BE 3-FT MIN. WIDTH UNLESS APPROVED BY THE ENGINEER. SIDE FLARES THAT ARE PART OF THE PATH OF TRAVEL SHALL BE A 10H:1V MAX. SLOPE.

11. THE DISTANCE BETWEEN SIDE FLARES OF TWO ADJACENT CURB RAMPS SHALL BE A MINIMUM OF 12-INCHES AS MEASURED AT THE FACE OF CURB. A MINIMUM 3-INCH CURB EXPOSURE SHALL BE MAINTAINED BETWEEN ADJACENT FLARES.



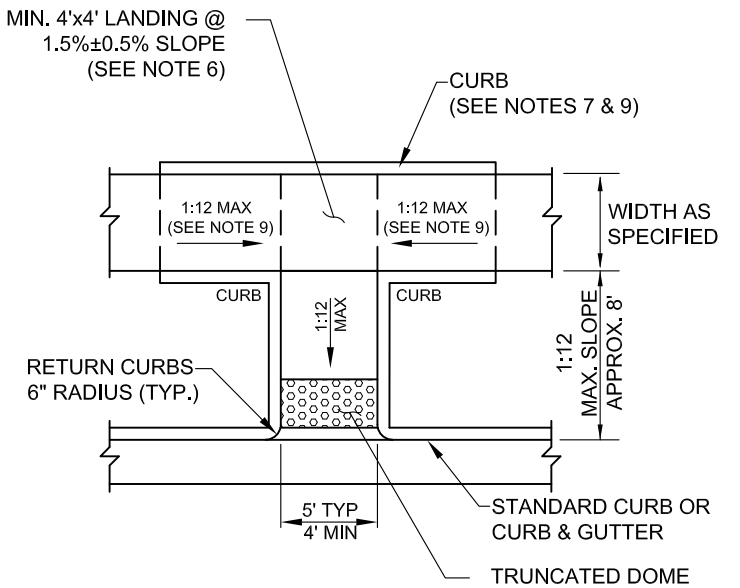
RAMP "B"
WITH PLANTING STRIP

NOTE: USE ONLY WHEN SITE CONSTRAINTS PROHIBIT INSTALLING TWO RAMPS.

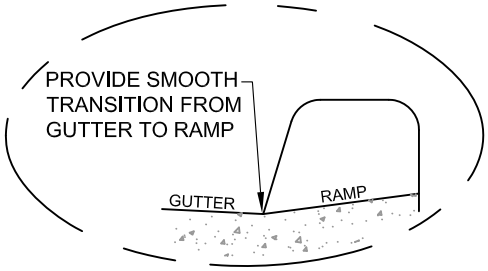
CITY OF CORVALLIS
ENGINEERING DIVISION

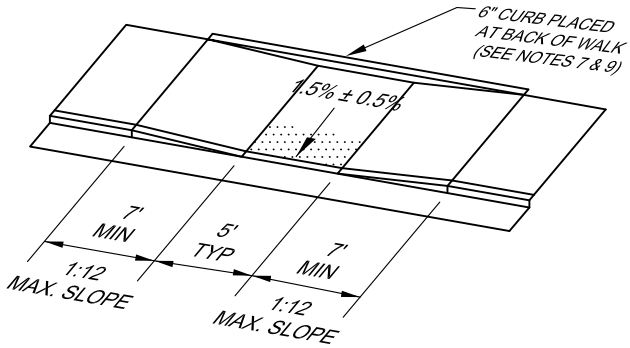
STANDARD SIDEWALK RAMPS

DATE: JANUARY 2020	SCALE: NONE	STANDARD DETAIL No.
APPROVED:		107



RAMP "C"





RAMP "D"

NOTES:

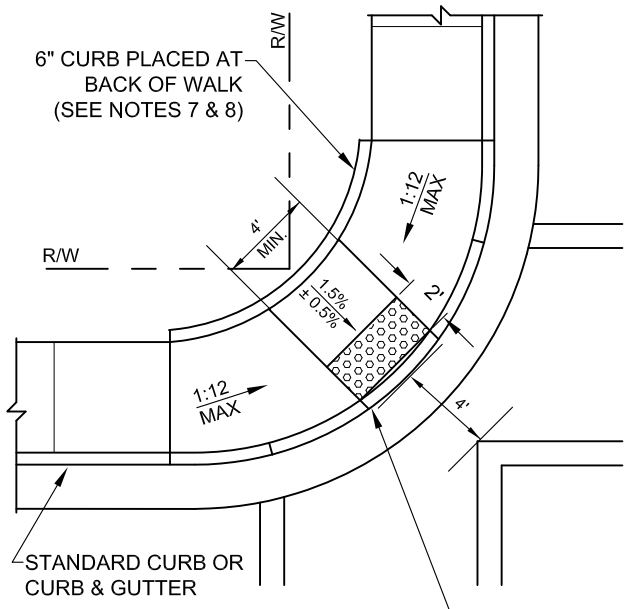
1. MAXIMUM RAMP SLOPE SHALL BE 1 VERTICAL TO 12 HORIZONTAL .
2. INDIVIDUAL SITUATIONS MAY REQUIRE SPECIAL DESIGN CONSIDERATION TO ENSURE COMPLIANCE WITH UNITED STATES ACCESS BOARD STANDARDS.
3. PLACE TRUNCATED DOME DETECTABLE WARNING TEXTURE IN THE LOWER 2' ADJACENT TO TRAFFIC OF THROAT OF RAMP ONLY. COLOR OF TEXTURE TO BE FEDERAL COLOR NO. 22144. ALL TRUNCATED DOMES PLACED WITH IN A HISTORICAL DISTRICT SHALL BE OF CONCRETE MATERIAL. TRUNCATED DOMES PLACE OUTSIDE OF HISTORICAL DISTRICTS SHALL BE OF POLYMER MATERIAL.
4. SAWCUT AND REMOVE THE EXISTING CURB RETURN TO THE OUTER EDGE OF THE RAMP UNLESS A JOINT EXISTS WITHIN 5 FEET OF THE RAMP, IN WHICH CASE REMOVE TO THE JOINT.
5. SAWCUT AND REMOVE EXISTING SIDEWALK TO NEAREST FULL PANEL EDGE AS REQUIRED.
6. A 4' X 4' LANDING IS REQUIRED AT THE TOP OF ANY RAMP THAT HAS A SLOPE GREATER THAN 2%. IF A CURB, WALL, OR OTHER OBSTRUCTION EXISTS AT THE BACK OF SIDEWALK, THE LANDING SHALL BE INCREASED TO 5' x 4', WITH THE 5' DIMENSION PROVIDED IN THE DIRECTION OF THE RAMP RUN.
7. IF R/W DOESN'T ALLOW ADEQUATE SPACE FOR CURB TO BE PLACED OUTSIDE OF BACK OF WALK, INCORPORATE INTO SIDEWALK WIDTH AS DIRECTED BY ENGINEER.
8. WHEN PARK STRIP IS LESS THAN 8 FEET IN WIDTH, RECONSTRUCT ADDITIONAL SIDEWALK OUTSIDE OF RAMP AREA TO ALLOW FOR A 1:12 MAX. SLOPE.
9. CURBS SEPARATING LANDSCAPED AREAS FROM RAMPS ARE FOR RETAINING PURPOSES. WHERE APPROPRIATE GRADING MEASURES ARE TAKEN, CURBS MAY BE ELIMINATED WITH PRIOR APPROVAL.

CITY OF CORVALLIS

ENGINEERING DIVISION

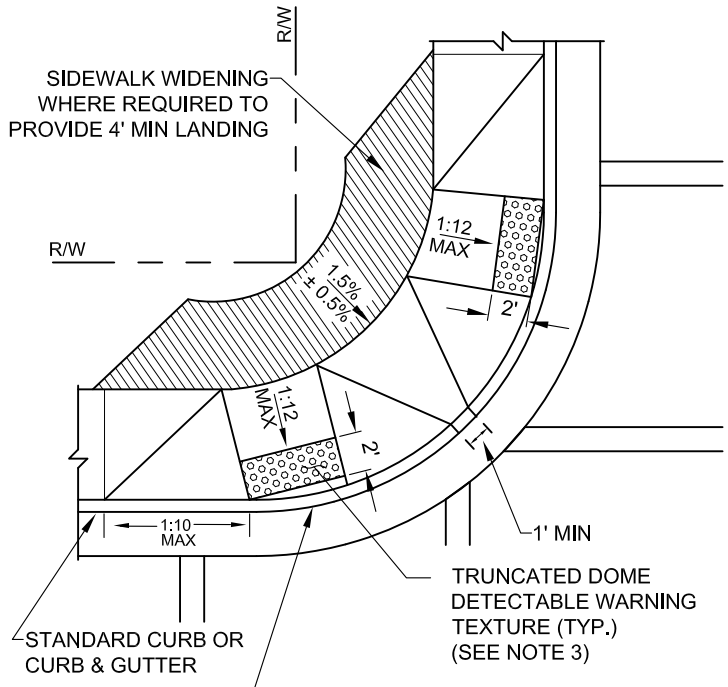
STANDARD SIDEWALK RAMPS

DATE: JANUARY 2020	SCALE: NONE	STANDARD DETAIL No.
APPROVED:		107A

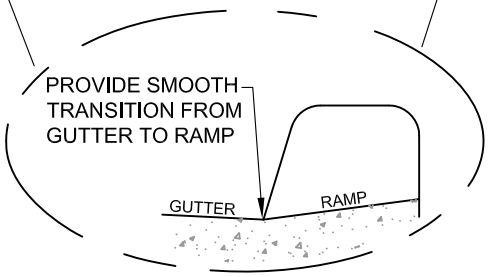


RAMP "E"

USE IN ALTERATIONS ONLY
WHEN SITE CONSTRAINTS PROHIBIT
INSTALLING TWO RAMPS



RAMP "F"



NOTES:

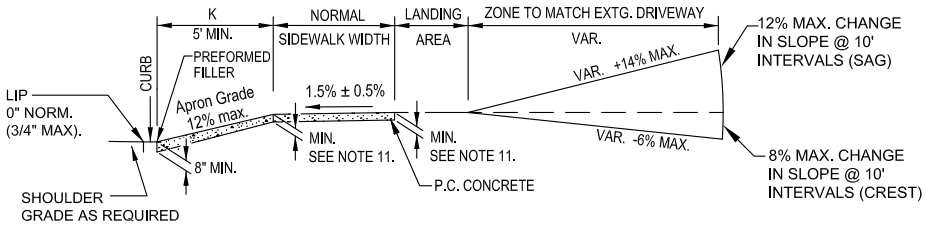
1. MAXIMUM RAMP SLOPE SHALL BE 1 VERTICAL TO 12 HORIZONTAL .
2. INDIVIDUAL SITUATIONS MAY REQUIRE SPECIAL DESIGN CONSIDERATION TO ENSURE COMPLIANCE WITH UNITED STATES ACCESS BOARD STANDARDS.
3. PLACE TRUNCATED DOME DETECTABLE WARNING TEXTURE IN THE LOWER 2' ADJACENT TO TRAFFIC OF THROAT OF RAMP ONLY. COLOR OF TEXTURE TO BE FEDERAL COLOR NO. 22144. ALL TRUNCATED DOMES PLACED WITH IN A HISTORICAL DISTRICT SHALL BE OF CONCRETE MATERIAL. TRUNCATED DOMES PLACE OUTSIDE OF HISTORICAL DISTRICTS SHALL BE OF POLYMER MATERIAL.
4. SAWCUT AND REMOVE THE EXISTING CURB RETURN TO THE OUTER EDGE OF THE RAMP UNLESS A JOINT EXISTS WITHIN 5 FEET OF THE RAMP, IN WHICH CASE REMOVE TO THE JOINT.
5. SAWCUT AND REMOVE EXISTING SIDEWALK TO NEAREST FULL PANEL EDGE AS REQUIRED.
6. A 4' X 4' LANDING IS REQUIRED AT THE TOP OF ANY RAMP THAT HAS A SLOPE GREATER THAN 2%. IF A CURB, WALL, OR OTHER OBSTRUCTION EXISTS AT THE BACK OF SIDEWALK, THE LANDING SHALL BE INCREASED TO 5' x 4', WITH THE 5' DIMENSION PROVIDED IN THE DIRECTION OF THE RAMP RUN.
7. IF R/W DOESN'T ALLOW ADEQUATE SPACE FOR CURB TO BE PLACED OUTSIDE OF BACK OF WALK, INCORPORATE INTO SIDEWALK WIDTH AS DIRECTED BY ENGINEER.
8. CURBS SEPARATING LANDSCAPED AREAS FROM RAMPS ARE FOR RETAINING PURPOSES. WHERE APPROPRIATE GRADING MEASURES ARE TAKEN, CURBS MAY BE ELIMINATED WITH PRIOR APPROVAL.

CITY OF CORVALLIS

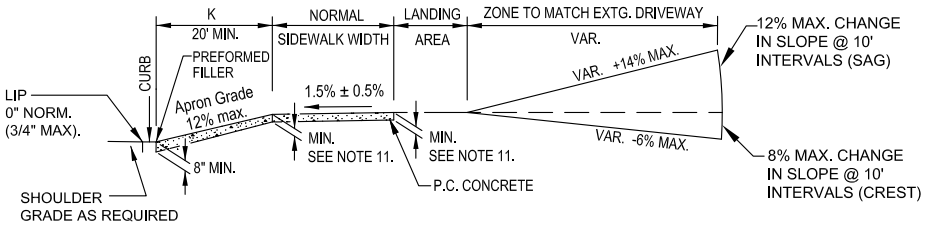
ENGINEERING DIVISION

STANDARD SIDEWALK RAMPS

DATE: JANUARY 2020	SCALE: NONE	STANDARD DETAIL No.
APPROVED: bms		107B



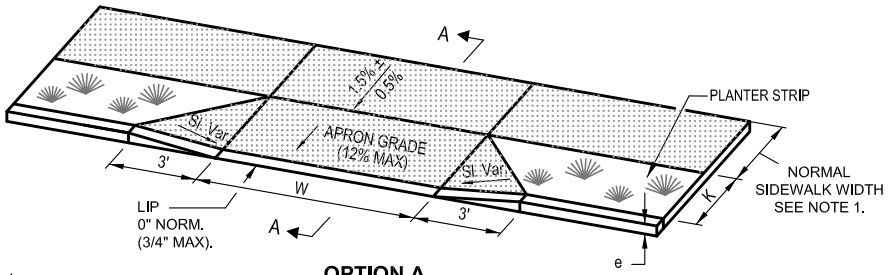
SECTION A-A



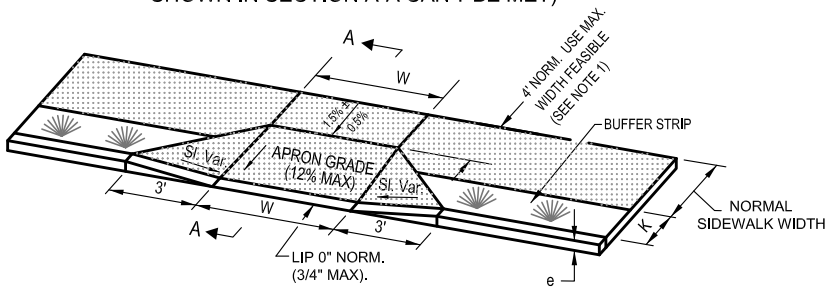
SECTION B-B

GENERAL NOTES:

1. 4' min sidewalk width with 1.5% ± 0.5% slope required through driveways.
2. Where existing driveway is in good condition and meets slope requirements, construct only as much as required for satisfactory connection with new work.
3. Check the gutter flow depth at driveway location to assure that the design flood does not overtop the back of sidewalk at driveway. If overtopping occurs place an inlet at upstream side of driveway or perform other approved design mitigation.
4. Equations may be calculated using feet or inches. Use same unit throughout equation.
5. Tooled joints are required at all driveway slope break lines. All tooled joints shall be 1/4" radius.
6. Longitudinal slopes shown are relative to the running slope of the sidewalk.
7. All dimensions except those of General Note 1 may be amended with approval by the engineer.
8. At least 10' of driveway behind the sidewalk should be surfaced to prevent tracking of gravel onto the sidewalk.
9. All driveways shall be separated by 20' of straight curb between each driveway providing access to a parcel or parcels of land under common ownership or occupancy, unless otherwise directed.
10. No driveways shall be built within 15' of the end of any curb return unless otherwise directed.
11. All single family residential driveways and sidewalk sections through driveways shall have a nominal thickness of 6" of concrete. All other approaches shall be 8" thick.
12. Expansion joints shall be required only when new concrete structures are constructed abutting existing concrete structures unless otherwise directed by the engineer.
13. No driveways shall be built within 5' of any property line unless otherwise directed by the engineer.
14. Saw cut existing pavement a minimum of 24" from face of new curb or gutter. Saw cuts shall extend to near side of bike lane stripe where bike lane is present.
15. All concrete used in driveway construction shall attain a 28 day minimum compressive strength of 4,000 psi.
16. Per the City of Corvallis Land Development Code (LDC) Section 4.1.40.i(2), Single-family (Attached or Detached) and Duplex development shall be limited to a **maximum 20 ft.-wide curb cut**. An exception to this provision may be granted in situations where steep terrain in excess of 15 percent grade prevents compliance. All other driveways will be limited as shown in table below.



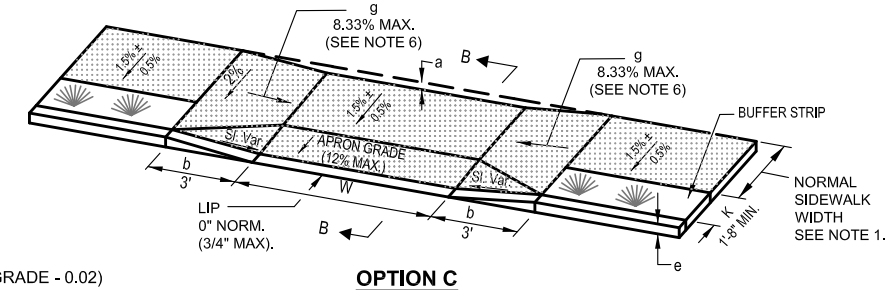
OPTION A
TYPICAL SEPARATED SIDEWALK DRIVEWAY
(USE OPTIONS F OR G BELOW IF SLOPE REQUIREMENTS SHOWN IN SECTION A-A CAN'T BE MET)



OPTION B
DRIVEWAY ENCROACHES
INTO SIDEWALK

MAXIMUM WIDTHS
MULTI FAMILY AND
COMMERCIAL ONLY

STREET FRONTAGE	ONE DRIVEWAY MAX. D/W WIDTH	TWO DRIVEWAYS MAX. D/W WIDTHS
UP TO 50 FEET	25 FEET	NOT PERMITTED
50 TO 75 FEET	25 FEET	20 FEET EACH
75 TO 100 FEET	30 FEET	25 FEET EACH
OVER 100 FEET	ADDITIONAL FRONTAGE OVER 100 FEET WILL BE SUBJECT TO FRONTAGE AS STATED ABOVE	



OPTION C
LOWERED SIDEWALK

W = WIDTH OF DRIVEWAY AS EXISTS BEHIND SIDEWALK
K = PLANTER STRIP WIDTH AS SHOWN ON PLANS

a = e - LIP - K(APRON GRADE - 0.02)
b = a/g

NOTE: DIMENSIONS a & b ARE NOMINAL. CONSTRUCT DRIVEWAYS TO MEET REQUIRED SLOPES.

CITY OF CORVALLIS
ENGINEERING DIVISION

DRIVEWAY IN
SETBACK SIDEWALK

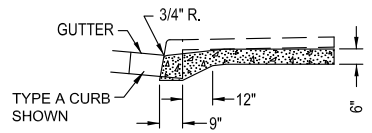
APPROVED:
DATE: JANUARY 2020
SCALE: NONE
STANDARD DETAIL No.
108

GENERAL NOTES:

1. 4' min sidewalk width with 1.5% ± 0.5% slope required through driveways.
2. Where existing driveway is in good condition and meets slope requirements, construct only as much as required for satisfactory connection with new work.
3. Tooled joints are required at all driveway slope break lines. All tooled joints shall be 1/4" radius.
4. All dimensions except those of General Note 1 may be amended with approval by the engineer.
5. At least 10' of driveway behind the sidewalk should be surfaced to prevent tracking of gravel onto the sidewalk.
6. All driveways shall be separated by 20' of straight curb between each driveway providing access to a parcel or parcels of land under common ownership or occupancy, unless otherwise directed.
7. No driveways shall be built within 15' of the end of any curb return unless otherwise directed.
8. All single family residential driveways and sidewalk sections through driveways shall have a nominal thickness of 6" of concrete. All other approaches shall be 8" thick.
9. Expansion joints shall be required only when new concrete structures are constructed abutting existing concrete structures unless otherwise directed by the engineer.
10. No driveways shall be built within 5' of any property line unless otherwise directed by the engineer.
11. Saw cut existing pavement a minimum of 24" from face of new curb or gutter. Saw cuts shall extend to near side of bike lane stripe where bike lane is present.
12. All concrete used in driveway construction shall attain a 28 day minimum compressive strength of 4,000 psi.
13. Per the City of Corvallis Land Development Code (LDC) Section 4.1.40.i(2), Single-family (Attached or Detached) and Duplex development shall be limited to a **maximum 20 ft.-wide curb cut**. An exception to this provision may be granted in situations where steep terrain in excess of 15 percent grade prevents compliance. All other driveways will be limited as shown in table below. driveways within the public right-of-way shall not exceed the maximum widths identified herein. unless otherwise directed by the Engineer.

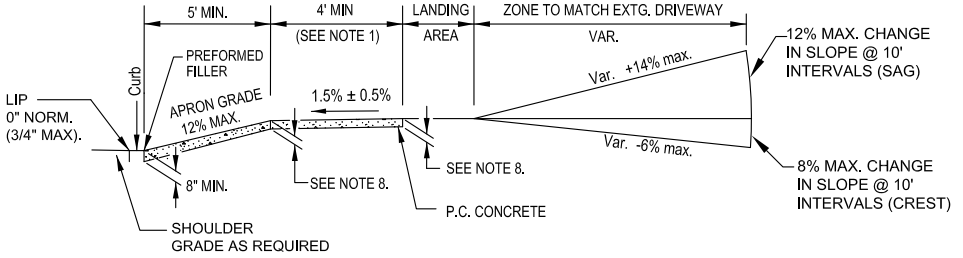
MAXIMUM WIDTHS
MULTI FAMILY AND
COMMERCIAL ONLY

STREET FRONTAGE	ONE DRIVEWAY MAX. D/W WIDTH	TWO DRIVEWAYS MAX. D/W WIDTHS
UP TO 50 FEET	25 FEET	NOT PERMITTED
50 TO 75 FEET	25 FEET	20 FEET EACH
75 TO 100 FEET	30 FEET	25 FEET EACH
OVER 100 FEET	ADDITIONAL FRONTAGE OVER 100 FEET WILL BE SUBJECT TO FRONTAGE AS STATED ABOVE	

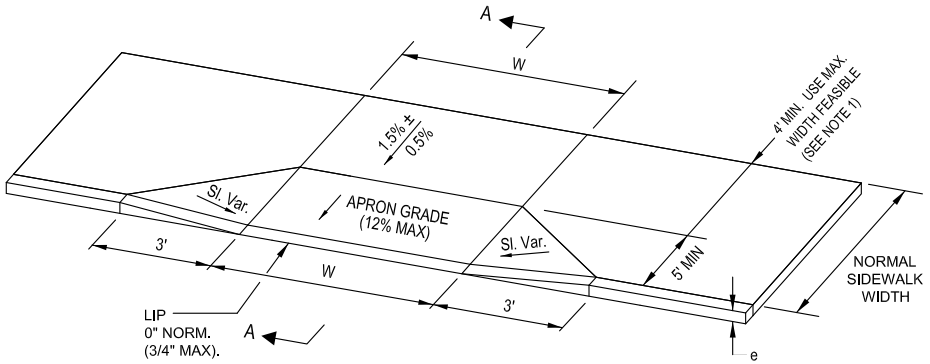


FOR DRIVEWAYS WITH MONOLITHIC CURB & SIDEWALK
(For details not shown, see Detail no. 103B & Section A-A)

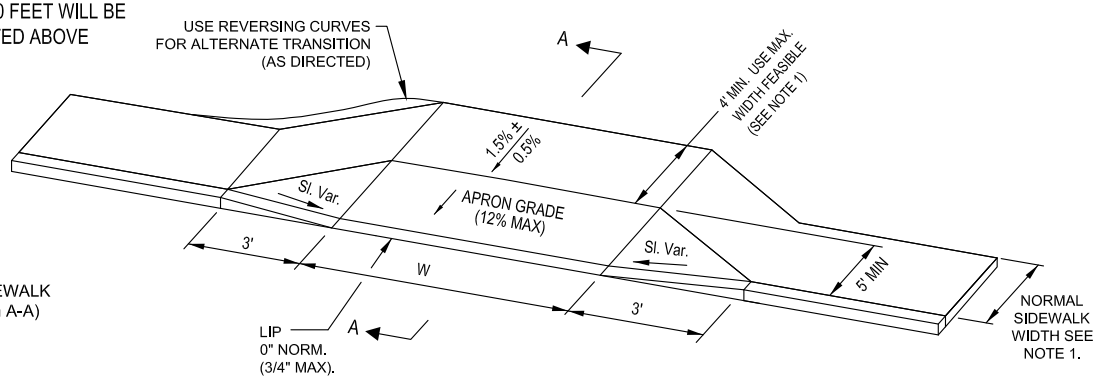
W = WIDTH OF DRIVEWAY AS EXISTS BEHIND SIDEWALK



SECTION A-A



OPTION D
DRIVEWAY IN WIDE SIDEWALK

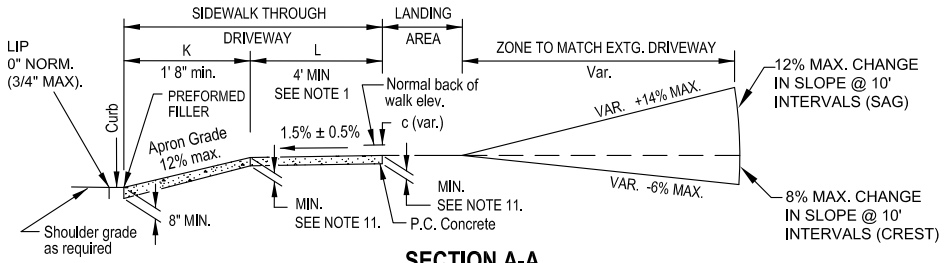


OPTION E
SIDEWALK WRAPPED AROUND DRIVEWAY

CITY OF CORVALLIS
ENGINEERING DIVISION

DRIVEWAY IN
CURBSIDE SIDEWALK

APPROVED:
DATE: JANUARY 2020
SCALE: NONE
STANDARD DETAIL No.
108A



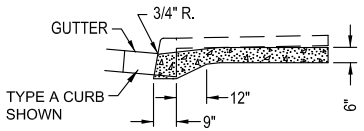
SECTION A-A

GENERAL NOTES:

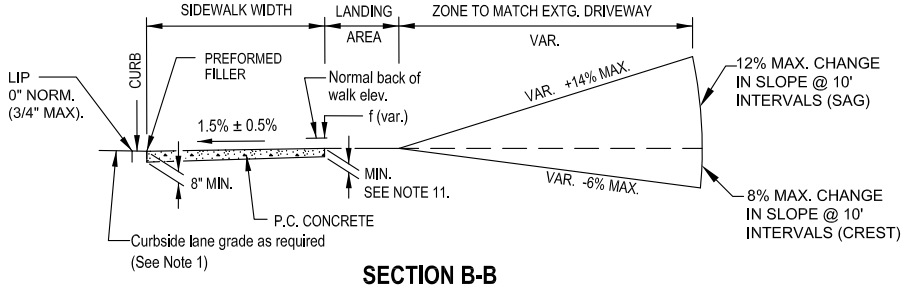
1. 4' min sidewalk width with 1.5% ± 0.5% slope required through driveways.
2. Where existing driveway is in good condition and meets slope requirements, construct only as much as required for satisfactory connection with new work.
3. Check the gutter flow depth at driveway location to assure that the design flood does not overtop the back of sidewalk at driveway. If overtopping occurs place an inlet at upstream side of driveway or perform other approved design mitigation.
4. Equations may be calculated using feet or inches. Use same unit throughout equation.
5. Tooled joints are required at all driveway slope break lines. All tooled joints shall be 1/4" radius.
6. Longitudinal slopes shown are relative to the running slope of the sidewalk.
7. All dimensions except those of General Note 1 may be amended with approval by the engineer.
8. At least 10' of driveway behind the sidewalk should be surfaced to prevent tracking of gravel onto the sidewalk.
9. All driveways shall be separated by 20' of straight curb between each driveway providing access to a parcel or parcels of land under common ownership or occupancy, unless otherwise directed.
10. No driveways shall be built within 15' of the end of any curb return unless otherwise directed.
11. All single family residential driveways and sidewalk sections through driveways shall have a nominal thickness of 6" of concrete. All other approaches shall be 8" thick.
12. Expansion joints shall be required only when new concrete structures are constructed abutting existing concrete structures unless otherwise directed by the engineer.
13. No driveways shall be built within 5' of any property line unless otherwise directed by the engineer.
14. Saw cut existing pavement a minimum of 24" from face of new curb or gutter. Saw cuts shall extend to near side of bike lane stripe where bike lane is present.
15. All concrete used in driveway construction shall attain a 28 day minimum compressive strength of 4,000 psi.
16. Per the City of Corvallis Land Development Code (LDC) Section 4.1.40.i(2), Single-family (Attached or Detached) and Duplex development shall be limited to a **maximum 20 ft.-wide curb cut**. An exception to this provision may be granted in situations where steep terrain in excess of 15 percent grade prevents compliance. All other driveways will be limited as shown in table below.

MAXIMUM WIDTHS
MULTI FAMILY AND
COMMERCIAL ONLY

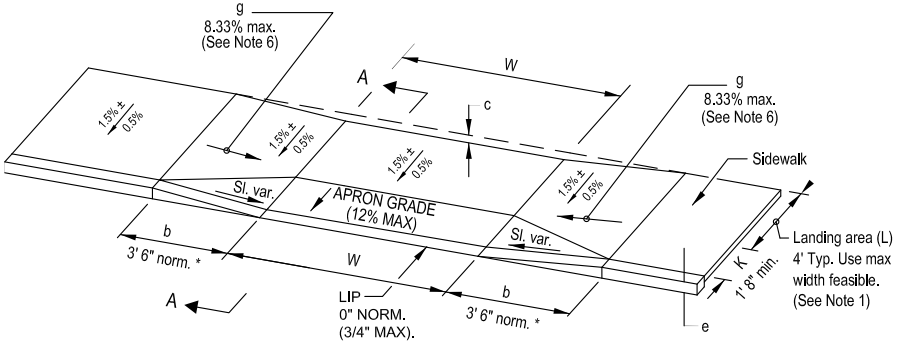
STREET FRONTAGE	ONE DRIVEWAY MAX. D/W WIDTH	TWO DRIVEWAYS MAX. D/W WIDTHS
UP TO 50 FEET	25 FEET	NOT PERMITTED
50 TO 75 FEET	25 FEET	20 FEET EACH
75 TO 100 FEET	30 FEET	25 FEET EACH
OVER 100 FEET	ADDITIONAL FRONTAGE OVER 100 FEET WILL BE SUBJECT TO FRONTAGE AS STATED ABOVE	



FOR DRIVEWAYS WITH MONOLITHIC CURB & SIDEWALK
(For details not shown, see Detail no. 103B & Section A-A)



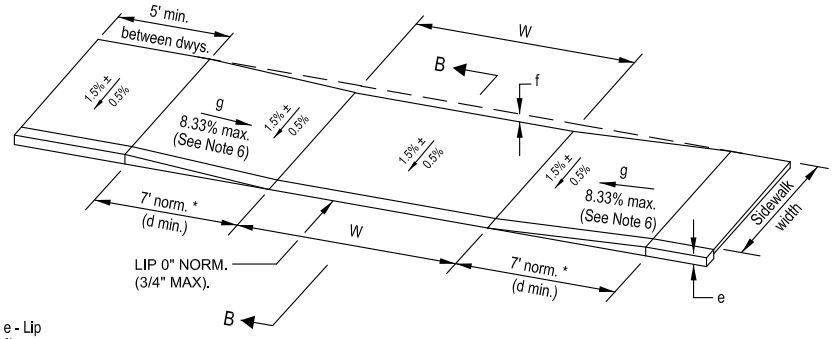
SECTION B-B



c = e - Lip - K(Apron grade - 0.02)
b = c/g

* May be lengthened to obtain flatter slopes on hills.

OPTION F
PARTIALLY LOWERED SIDEWALK



f = e - Lip
d = f/g

W = WIDTH OF DRIVEWAY AS EXISTS BEHIND SIDEWALK

* May be lengthened to obtain flatter slopes on hills.

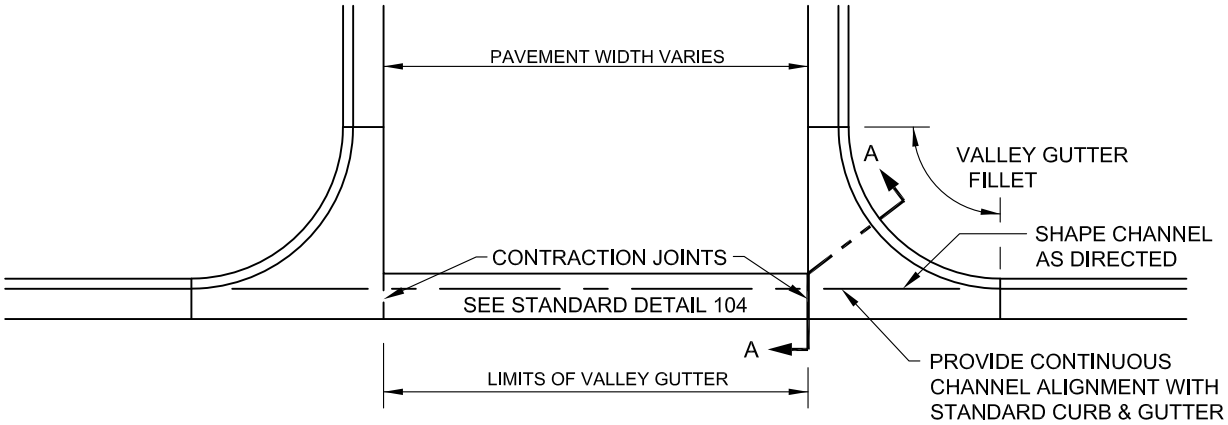
OPTION G
FULLY LOWERED SIDEWALK

NOTE: Dimensions b, c, d & f are nominal. Construct driveways to meet required slopes.

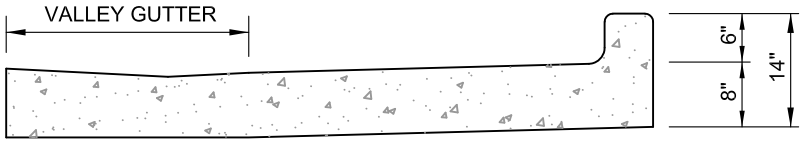
CITY OF CORVALLIS
ENGINEERING DIVISION

DRIVEWAY IN
CURBSIDE SIDEWALK

APPROVED:
DATE: JANUARY 2020
SCALE: NONE
STANDARD DETAIL No.
108B

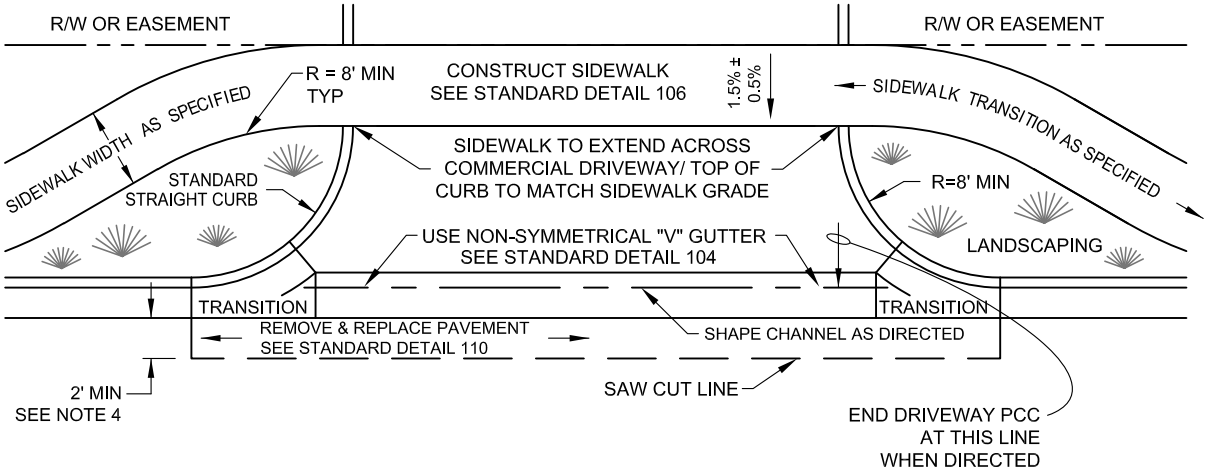


PLAN VIEW



SECTION A-A

VALLEY GUTTER ACROSS INTERSECTION



COMMERCIAL DRIVEWAY APPROACH

NOTES:

1. CONSTRUCTION CURBING MONOLITHIC WITH FILLET AND INSTALL SIDEWALK RAMPS AS DESIGNATED ON THE PLANS.
2. PCC SHALL ATTAIN A 28-DAY MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI.
3. ALL SIDEWALK CURVES WILL HAVE 8' MIN RADII.
4. SAW CUT EXISTING PAVEMENT A MINIMUM OF 24" FROM FACE OF NEW CURB OR GUTTER. SAW CUTS SHALL EXTEND TO NEAR SIDE OF BIKE LANE STRIPE WHERE BIKE LANE IS PRESENT.

CITY OF CORVALLIS

ENGINEERING DIVISION

VALLEY GUTTER ACROSS INTERSECTION & STANDARD COMMERCIAL DRIVEWAY APPROACH

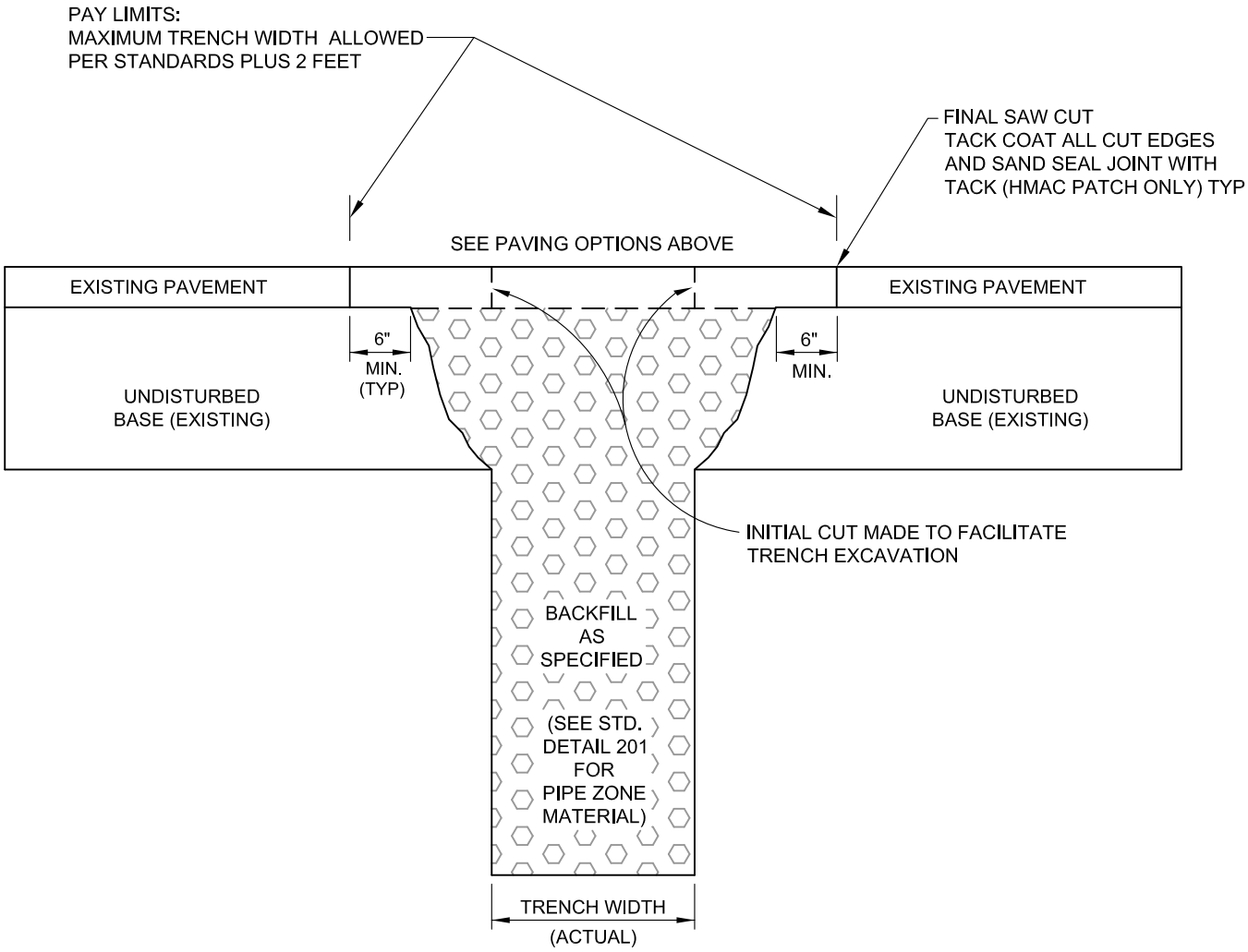
DATE: JANUARY 2020	SCALE: NONE	STANDARD DETAIL No.
APPROVED:		109

HMAC PAVEMENT TO BE REPLACED SHALL UTILIZE THE FOLLOWING SYSTEM:

CRUSHED AGGREGATE BASE MATCHING EXISTING BASE, (12") MINIMUM AND A MINIMUM OF (4") OF CLASS "C" HMAC PAVEMENT PLACED IN 2-INCH MAX. LIFTS ROLLER COMPACTED, PRECEDED BY ANY ADDITIONAL LIFTS NECESSARY TO MATCH EXISTING PAVEMENT THICKNESS GREATER THAN 4-INCHES.

P.C.C. PAVEMENT TO BE REPLACED SHALL BE REPLACED IN FULL PANELS AND UTILIZE THE FOLLOWING SYSTEM:

FULL PANELS WITH A MINIMUM OF EIGHT INCHES (8") OF P.C.C. PAVEMENT OR TO THE THICKNESS OF THE REMOVED PAVEMENT - WHICHEVER IS GREATER - PLACED ON A MINIMUM TWO INCHES (2") CRUSHED AGGREGATE LEVELING COURSE.

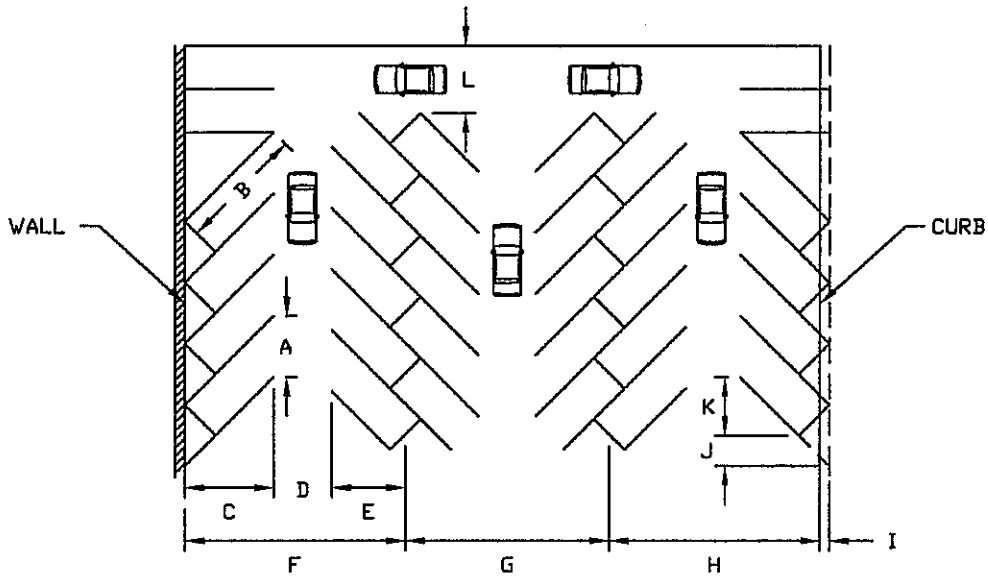


NOTES:
1. ALL EXISTING HMAC OR PCC PAVEMENT SHALL BE SAWCUT AFTER BACKFILL AND PRIOR TO REPAVING.

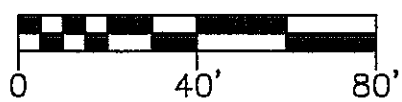
CITY OF CORVALLIS
ENGINEERING DIVISION

STREET CUT

DATE: JANUARY 2020	SCALE: NONE	STANDARD DETAIL No.
APPROVED: bas		110



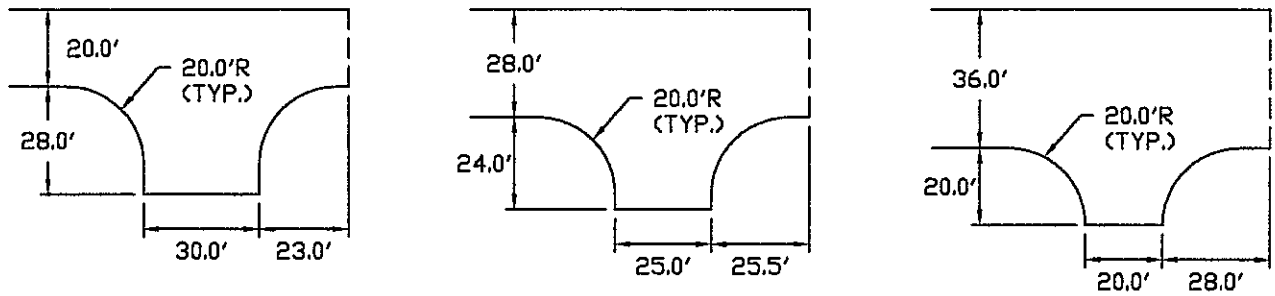
Dimension	On Diagram	Angle 45	60	75	90	Compact Spaces
Stall width, parallel to aisle	A	12.7	10.4	9.3	9.0	8.5
Stall length to line	B	25.0	22.0	20.0	18.5	16.0
Stall depth to wall	C	17.5	19.0	19.5	18.5	16.0
Aisle width between stall lines	D	12.0	16.0	23.0	26.0	20.0
Stall depth, interlock	E	15.3	17.5	18.8	18.5	–
Module, wall to interlock	F	44.8	52.5	61.3	63.0	52.0
Module, interlocking	G	42.6	51.0	61.0	63.0	52.0
Module, interlock to curb face	H	42.8	50.2	58.8	60.5	50.0
Bumper overhang (typical)	I	2.0	2.3	2.5	2.5	2.0
Offset	J	6.3	2.7	0.5	0.0	–
Setback	K	11.0	8.3	5.0	0.0	–
Cross aisle, one–way	L	14.0	14.0	14.0	14.0	14.0
Cross aisle, two–way	_	24.0	24.0	24.0	24.0	24.0



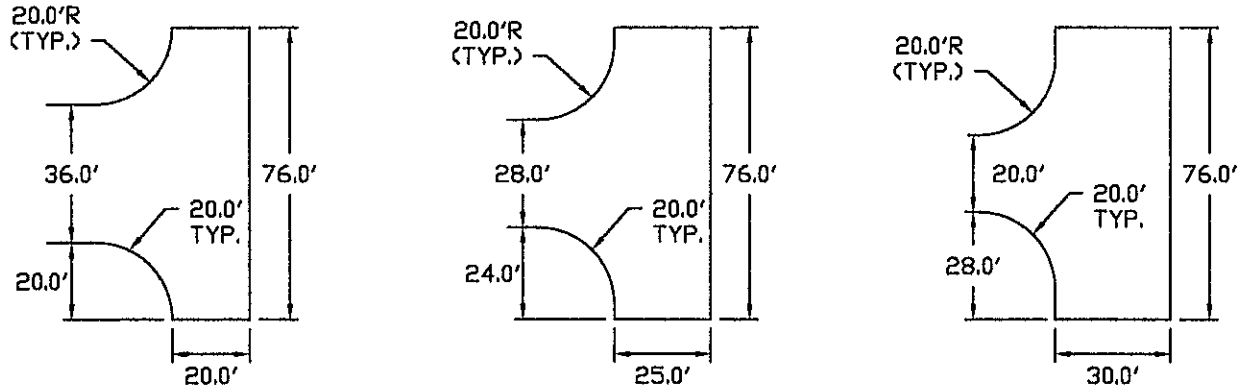
CITY OF CORVALLIS
PLANNING DEPARTMENT

PARKING STALL LAYOUT

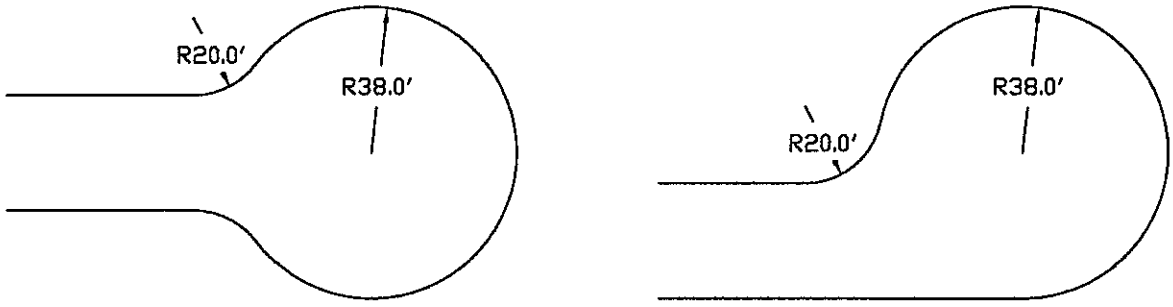
DATE: OCTOBER 2003	SCALE: 1" = 40'	STANDARD DETAIL No.
APPROVED:		111



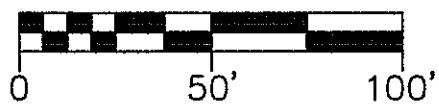
BOOT TURNAROUND



HAMMERHEAD TURNAROUND



CUL-DE-SAC

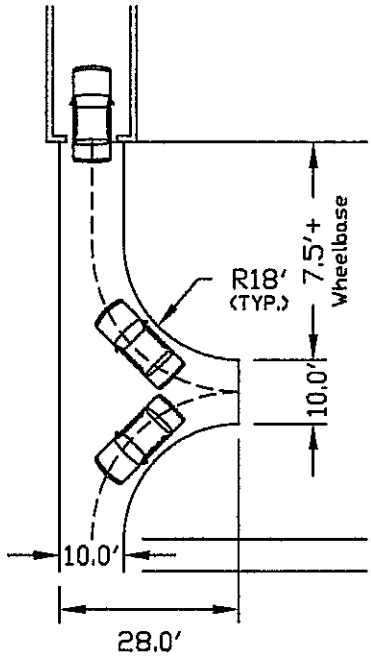


CITY OF CORVALLIS

FIRE DEPARTMENT

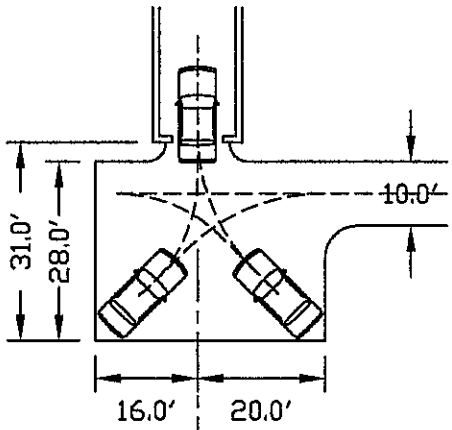
FIRE APPARATUS TURNAROUND

DATE: OCTOBER 2003	SCALE: 1" = 50'	STANDARD DETAIL No.
APPROVED:		112



NOTES:
Dimensions are for easy turning of an average passenger car.

"Y" TURN FOR BACKING OUT
Dashed line shows route going out

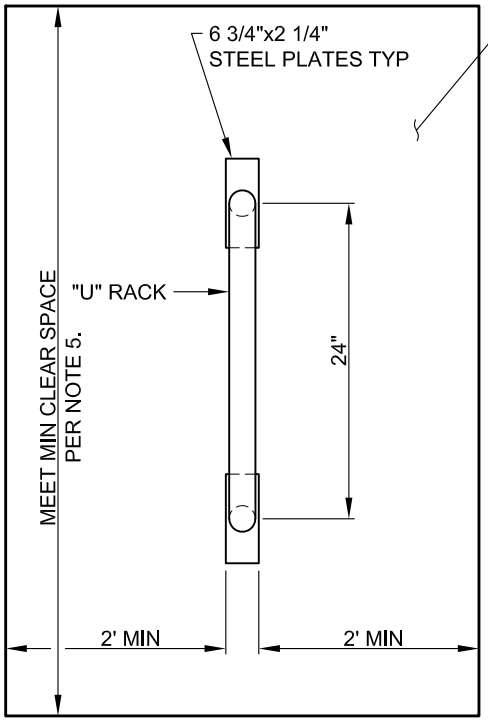


DOUBLE "Y" TURN REQUIRING BACKING BOTH WAYS
Dimensions for average sized car.
Use only where space is limited.

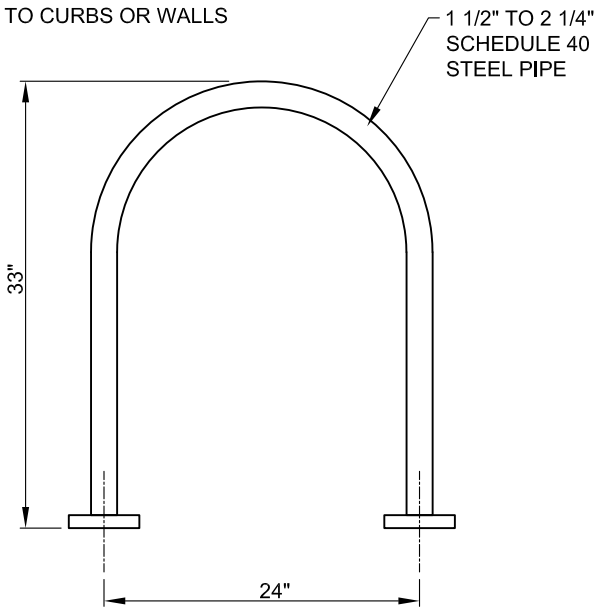
CITY OF CORVALLIS
PLANNING DEPARTMENT

GARAGE APPROACHES AND TURNS

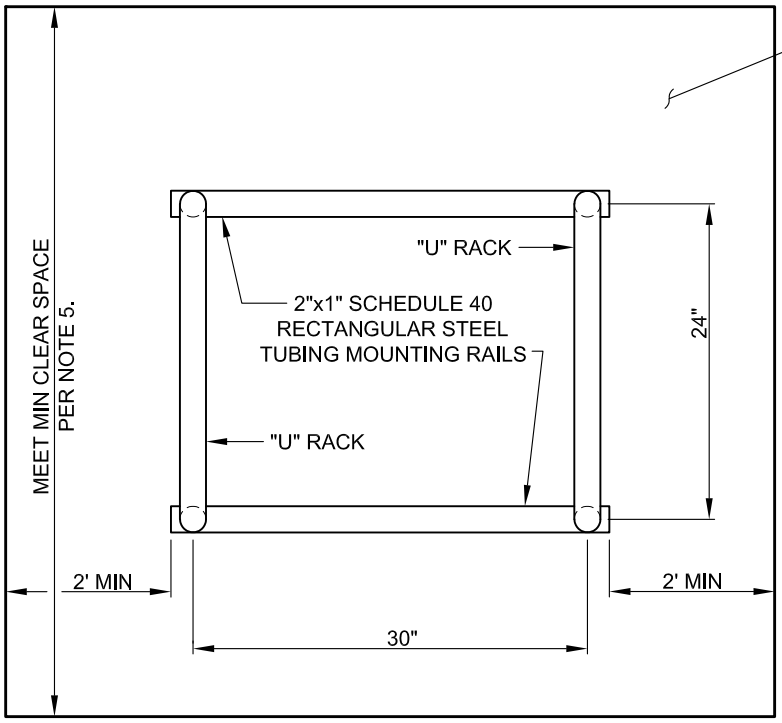
DATE: OCTOBER 2003	SCALE: 1" = 30'	STANDARD DETAIL No.
APPROVED:		113



SINGLE INVERTED "U"



INVERTED "U"



MULTIPLE INVERTED "U"

NOTES:

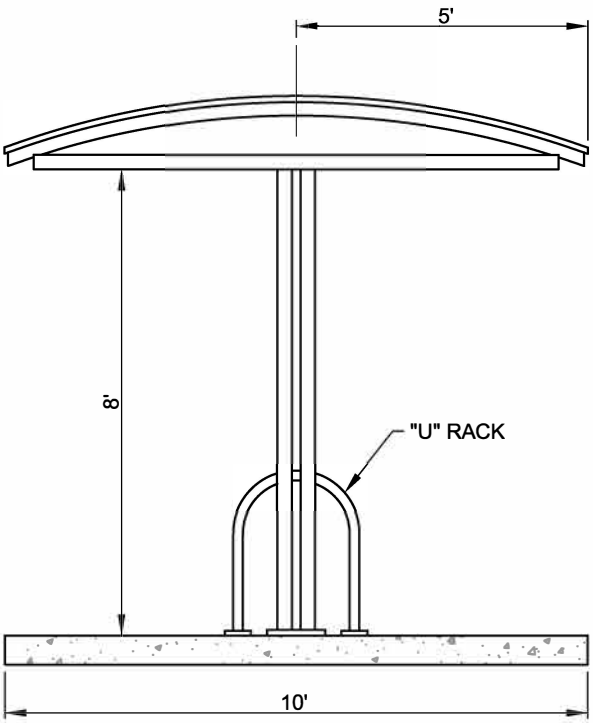
1. BIKE RACKS SHALL HAVE A GLOSS BLACK POLYESTER POWDER COAT FINISH.
2. MOUNTING RAILS SHALL BE FURNISHED WITH MOUNTING HOLES AND VANDAL RESISTANT CONCRETE ANCHOR MOUNTING HARDWARE.
3. EACH "U" SHALL BE WELDED OR MOUNTED TO RAILS OR PLATES WITH VANDAL RESISTANT OR HIDDEN FASTENERS.
4. FOR SINGLE "U" INSTALLATION EACH MOUNTING PLATE WILL BE EQUIPED WITH TOW ANCHOR BOLT HOLES EACH.
5. RACKS MUST MAINTAIN 2' MIN CLEAR SPACE FROM ANY STRUCTURE OR GRADE BREAK.

CITY OF CORVALLIS

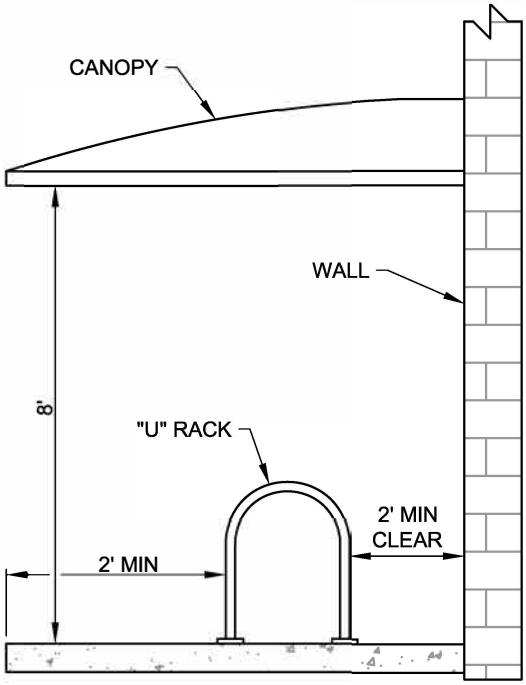
ENGINEERING DIVISION

INVERTED "U" BIKE RACK

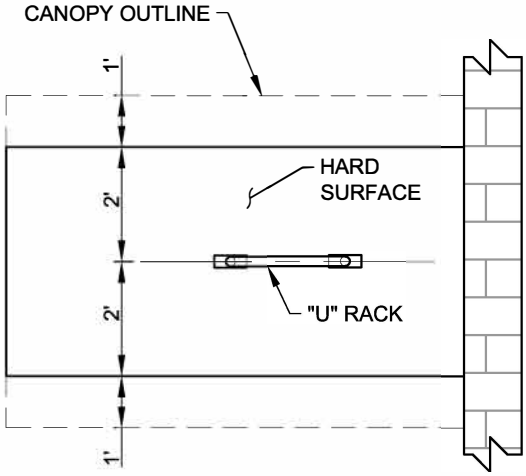
DATE: JANUARY 2020	SCALE: NONE	STANDARD DETAIL No.
APPROVED:		503



FREE STANDING BIKE CANOPY



WALL MOUNTED BIKE CANOPY



WALL MOUNTED BIKE CANOPY PLAN VIEW

NOTES:

1. THIS DETAIL SHOWES CONCEPTUAL LAYOUT FOR COVERED BIKE RACK STRUCTURES. ACTUAL STRUCTURE DESIGN AND APPEARANCE SHALL BE SUBMITTED TO THE CITY OF CORVALLIS BUILDING DEPARTMENT FOR REVIEW AND PERMITTING.

COVERED BIKE PARKING AWNING/OVERHANGS:

1. ALL OVERHANGS OR AWNINGS SERVING AS COVERS FOR BIKE PARKING (BIKE PARKING COVERS THAT ARE ATTACHED TO BUILDINGS) SHALL BE A MINIMUM OF 8 FEET WIDE AT A HEIGHT OF 8 FEET.
2. THE LENGTH OF THE AWNING/OVERHANG AT A HEIGHT OF 8 FEET WILL VARY BY THE NUMBER OF HOOPS WITHIN THE STRUCTURE BUT, MUST EXTEND A MINIMUM OF 3 FEET BEYOND ANY HOOP WITHIN THE STRUCTURE AT AN AWNING OR CANOPY HEIGHT OF 8 FEET.
3. THE LENGTH AND WIDTH OF ANY SUCH COVERING SHALL INCREASE BY A RATIO OF 1.5 FEET FOR EVERY FOOT OR INCREMENT THEREOF OVER 8 FOOT.

FREE STANDING BIKE PARKING STRUCTURES:

1. ALL FREE STANDING BIKE PARKING STRUCTURES SHALL BE 8 FEET IN HEIGHT AND A MINIMUM OF 10 FEET WIDE.
2. THE LENGTH OF THE ROOF LINE OF THE STRUCTURE WILL VARY BY THE NUMBER OF HOOPS WITHIN THE STRUCTURE BUT, THE ROOF LINE MUST EXTEND A MINIMUM OF 3 FEET BEYOND ANY HOOP WITHIN THE STRUCTURE.

CITY OF CORVALLIS

ENGINEERING DIVISION

BIKE RACK CANOPY

DATE: JANUARY 2020	SCALE: NONE	STANDARD DETAIL No.
APPROVED:		503A